AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF PAGES
N/A	1	76

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0002	AUG. 11, 2003	N/A	SPEC. NO. 1362

6. ISSUED BY CODE

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
SACRAMENTO, CALIFORNIA 95814-2922

7. ADMINISTERED BY *(If other than Item 6)* CODE

DISTRICT ENGINEER
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

CODE FACILITY CODE

(√) X

9A. AMENDMENT OF SOLICITATION NO.
DACA05-03-R-0017

9B. DATED *(SEE ITEM 11)*
N/A

10A. MODIFICATION OF CONTRACTS/ORDER NO.
N/A

10B. DATED *(SEE ITEM 13)*
N/A

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*
N/A

NOTE: ITEM 13 BELOW IS N/A.

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. N/A
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER *(Specify type of modification and authority)* N/A

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Upgrade Barracks
Buildings 645, 646 and 841
PRESIDIO OF MONTEREY, CALIFORNIA

1 Encl

1. Revised Pages: 01010-5,01010-21,01011-3,01011-4,01011-9,01011-10,01011-12,01011-14 thru 16,01011-01011-29 thru 45,01011-49,
01011-51,01011-65,01011-73,01011-75,01011-77,01011-78,01011-79,01011-80 thru 84, 01011-85 thru 117,01012-6,01505-8

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY *(Signature of Contracting Officer)*	16C. DATE SIGNED

FS HH-I-558	(Rev C) Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type) (Inch-Pound)
FS HH-I-595	(Rev C) Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic
FS L-F-475	(Rev A; Am 1; Int Am 3) Floor Covering Vinyl, Surface (Tile and Roll), with Backing
FS L-P-387	Plastic Sheet, Laminate, Thermosetting (for Designation Plates)
FS L-P-1040	(Rev B) Plastic Sheets and Strips (Polyvinyl Fluoride)
FS P-F-430	(Rev C; Am 1) Finish, Floor, Water-Emulsion (for Use on Light Colored Floors)
FS P-W-155	(Rev C; Int Am 1) Wax, Floor, Water-Emulsion
FS W-F-1814/GEN	(Rev A; Supple 1, Notice 1) Fuses, Cartridge, High Interrupting Capacity
FS W-S-610	(Rev D; Notice 1) Splice Connectors
FS 595	(Rev B) Colors Used in Government Procurement

5.2.3 MILITARY HANDBOOKS & STANDARDS AND MANUALS

~~Mil Hdbk 1008C~~	~~Fire Protection For Facilities Engineering, Design, and Construction~~
UFC 3-600-01	***Uniform Facilities Criteria Design: Fire Protection Engineering for Facilities***
TI 809-04	(1 DEC 98) Seismic Design for Buildings
TM 5-809-3	(1 OCT 92) Masonry Structural Design for Buildings
TM 5-811-1	Electric Power Supply and Distribution
FED-STD-795	Uniform Federal Accessibility Standards
ADAAG	Americans with Disability Act Accessibility Guidelines

5.2.4 STANDARDS

ETL 1110-3-502 Installation Information Infrastructure Architecture (I3A) Design and Implementation Guide, 02 March, 1999

5.2.5 Department of Transportation
Federal Aviation Administration

Order 6480.7c	Airport Traffic Control Tower and Terminal Radar Approach Control-Facility Design Guidelines

NEMA ICS 2	Industrial Control Devices, Controllers and Assemblies
NEMA ICS 6	Enclosures for Industrial Control and Systems
NEMA LD 3	(1995) High-Pressure Decorative Laminates
NEMA LD 3.1	(1995) Performance, Application, Fabrication and Installation of High Pressure Decorative Laminates
NEMA WD 1	(1983; R 1989) General Requirements for Wiring Devices
NEMA WD 6	(1988) Wiring Devices - Dimensional Requirements

5.3.37 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
One Batterymarch Park
Quincy, MA 02269
Ph: 800-344-3555
Fax: 800-593-6372
Internet: http://www.wpi.edu/~fpe/nfpa.html

NFPA 13	(~~1999~~ ***2003***) Installation of Sprinkler Systems
NFPA 13R	(~~1999~~ ***2003***) Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height
NFPA 24	(~~1995~~ ***2002***) Installation of Private Fire Service Mains and Their Appurtenances
NFPA 70	(2002) National Electrical Code
NFPA 72	(~~1999~~ ***2002***) National Fire Alarm Code
NFPA 80	(1999) Fire Doors and Windows
NFPA 101	(~~2000~~ ***2003***) Safety to Life from Fire in Buildings and Structures
NFPA 255	(2000) Method of Test of Surface Burning Characteristics of Building Materials
NFPA 701	(1999) Methods of Fire Test for Flame-Resistant Textiles and Films F
NFPA 780	(~~1997~~ ***2000***) Lightning Protection Code

5.3.38 NATIONAL WOOD WINDOW & DOOR ASSOCIATION (NWWDA)
1400 East Touhy Ave., Suite G-54
Des Plaines, IL 60018
Ph: 708-299-5200
Fax: 708-299-1286

NWWDA I.S. 1	(1987) Wood Flush Doors
NWWDA I.S. 4	(1994) Water-Repellent Preservative

1. NARRATIVES ON FUNCTIONAL REQUIREMENTS

The following narratives are included to aid the Contractor in understanding the requirements and functions of the Upgrade Barracks.

1.1 General:

This project will be to upgrade and renovate existing barracks buildings 645, 646, and 841. These barracks were originally constructed, for use as temporary quarters for language students, while attending classes on the Presidio of Monterey. Today, due to security requirements, there is an increased need for permanent party quarters. These barracks will be reconfigured to house permanent party personnel.

There is a trend in today's Army to make both the barrack's interior less institutional, and more residential in nature, providing our soldiers with comparable living accommodations to those available by the private industry off Post. This project should reflect that desire.

Due to a heightened increase in National Security, these barracks shall be designed in accordance with the Department of Defense Antiterrorism Standards for Buildings.

The Presidio of Monterey vulnerability assessment is "LOW", based on the 23 March 2000 Threat Assessment. What this means, is that the construction of this project has to comply with the minimum standards for protection of existing billeting.

~~The minimum standoff distances for conventional construction of billeting are: 45m (148 ft.) from the Post controlled perimeter fence; 25m (82 ft.) from all parking and roadways; 25m (82 ft.) from trash containers; 10m (33 ft.) from adjacent buildings for new construction. This is an existing billeting facility, so the requirements are less stringent due to previous construction practices, they are: 25m (82 ft.) from the Post controlled perimeter fence; 10m (33 ft.) from all parking and roadways; 10m (33 ft.) from trash containers; no antiterrorism minimum from adjacent buildings. There are additional requirements, including material specifications, clear zones, and landscaping that will need to comply with force protection as well.~~

There are exceptions to the force protection requirements for existing billeting buildings. These exceptions will be determined prior to award of this project, and passed along to the proposers by addendum. Under the current site conditions, the force protection requirements are not met.

For this project, the Design Build Contractor has the option of using the most beneficial materials that will meet the required criteria.

All these conditions still must be in compliance with the Presidio of Monterey's Master Plan, their integrated Environmental Plan, and their Design Guide. These reference documents may be obtained from Steven Scholten, U.S. Army Corps of Engineers Resident Engineer at the Presidio of Monterey, ph. 831-884-9932 x223.

1.2 SITE

1.2.1 Scope and Objectives

It shall be the Contractor’s responsibility to protect existing features. Damages by the Contractor shall be replaced, at no cost to the Government. Utility designs shall provide a functional design solution requiring only routine maintenance through its design life.

1.2.3 Topographic Survey

The existing topography is provided in an Attachment.

1.3 ARCHITECTURAL

1.3.1 General

This project is to design a barracks capable of housing “1+1” quarters. The buildings shall contain, in addition to the individual rooms, a lounge, laundry, recreation room, day rooms, mechanical room, electrical and communication rooms. These features have been incorporated into the floor plans that have been provided with this solicitation. A complete fire protection, detection, alarm system shall be provided, along with video surveillance capabilities.

These contract documents do not provide the definitive construction drawings. They do provide preliminary floor plan layouts for this project. It will be the requirement of this contract, that the contractor finalize the floor plans and floor elevations.

Construction materials for the facility shall be determined by the contractor, and reviewed by the government. This solicitation shall allow all types of construction according to the Uniform Building Code.

The buildings shall be designed to minimize life cycle cost, energy consumption, and maintenance through the proper selection of mass, forms, materials and construction standards. Use integrally colored materials to eliminate painting wherever possible.

Locate all above grade utility connections, vents and other projections through exterior walls away from high-visibility areas, such as front facades or pedestrian areas.

As previously stated, this project is to improve the quality of life for today's military personnel, by providing accommodations that are comparable to those available by private industry. Because of this, some net square footages have been sacrificed within the room spaces to cover up the originally exposed concrete masonry wall finish with a new painted gypsum board wall finish. Also, the originally exposed concrete ceiling shall be covered up, primarily to hide existing and new electrical wire-mold and conduit. All this, to provide an environment more like that of a private residence. With this concept in mind, the contractor shall make every effort possible to conceal any new electrical conduit, mechanical plumbing, ventilation ducts, fire suppression piping and sprinkler heads, etc., by concealing them in furred out walls, and, or suspended ceilings. This shall be done not only in the living areas, lounges, and corridors, but shall be carried throughout the entire facility, including the central breezeway and stairwells. It is assumed that the fire suppression system standpipes shall be exposed. In areas exposed to the outdoors, e.g. the breezeway, a stucco system shall be employed as the finish material, typical. The contractor shall provide details of all proposed enclosures, as described, to the contracting officer for approval prior to commencing said work. These enclosures are to be done with the architectural aesthetics of the facility in mind, typical.

2. DESIGN CRITERIA AND REQUIREMENTS

2.1 Site Layouts and Design

2.1.1 Force Protection

Force protection shall conform to the Draft of the Department of Defense Antiterrorism Standards for Buildings. These standards require a 10-meter (33 feet) clear zone between the parking lot and the ~~new~~ barracks.

2.1.2 Trash and Transformer Enclosures

1.Remove existing wood slats around enclosure
2.Construct new concrete walls on 3 sides(excluding the entry) using the same construction as the exterior walls of buildings 645,646,and 841. New concrete walls to have the same height as existing wood slat walls.
3.Anchor new concrete walls into existing concrete columns.
4.See Sec 2.3.20, Site Plan for Buildings 645 and 646 for existing locations.

2.1.3 Parking

1.See Sec 2.3.20, Site Plan for Buildings 645 and 646, and, Site Plan for Building 841

2.2 Utilities

a) Protect existing utility lines during construction.

b) Utilities are privately owned and the Contractor shall coordinate service connections with the Presidio of Monterey's (POM) Directorate of Public Works (DPW). (DPW: Dewey Baird 831-242-6315).

c) It shall be the contractor's responsibility, and at contractor's expense, to mark and locate every ~~site~~ ***point*** where ~~site~~ digging will occur. Contractor shall hire the services of USA North at 1-800-227-2600 (or other company specializing in the location of underground utilities) for marking and locating underground utilities and may not begin excavation until the site has been cleared and marked for underground utilities. Contractor shall not assume that utility maps or utility markings are accurate and shall exercise due diligence when digging. Damage cause by contractor's negligence ***operations*** will be charge to the contractor.

2.2.1 Gas & Electrical Lines

2.2.1.1 Pacific Gas and Electric owns the gas and electrical lines. Contractor shall submit a set of plans (starting at the 65% submittal) to PG&E for review and comment. The Contractor shall coordinate the design of gas and electric systems with PG&E. The drawing(s) shall be formally submitted for review and comment by the PG&E Engineering Department. Plans shall be corrected/revised in accordance with PG&E comments. The Contractor shall pay all fees to PG&E associated with this review effort. (PG&E: Applications 831-648-3257)

2.2.1.2 A $1000 deposit, for initiating paperwork, is required for the gas & electrical connection; excess funds are applied to engineering costs. After the site is selected PG&E will perform a field check and provide an estimate for the

engineering costs. It is to the contractor's discretion whether to trench to the gas main and contract PG&E to make the connection. Alternatively Contractor can complete the work and coordinate an inspection by PG&E and the City of Monterey. The later requires that the gas line be meter ready; PG&E shall install the meter.

2.2.2 Sanitary Sewer

2.2.2.1 The sanitary sewer service is now privately owned. Contractor shall coordinate with the DPW to complete necessary permits and pay connection fees. (Monterey Regional Water Pollution Control Agency: Applications 831-372-3367)

2.2.3 Water Supply

2.2.3.1 The water supply is privately owned by the California—American Water Company. A connection fee will be charged, Contractor shall coordinate with DPW and California—American Water Company. (Scott Casey 831-760-2232)

2.2.3.2 Post indicator valve shall be provided for the fire service line to the ~~new~~ building. Post indicator valve shall meet the requirements of UL 789.

Architectural

2.3.1 General

Design and construction for the facilities shall comply with the descriptions in these documents. This section shall describe the architectural features of design and construction. The architectural drawings provided in this solicitation were drawn in AutoCAD Architectural Desktop 3.1 and 3.3. If you do not have Architectural Desktop, AutoCAD 2000 with an object enabler will allow you to view and work with these files. The required object enabler can be obtained as a free download off the Internet at this location: http://pointa.autodesk.com/local/enu/portal/prodcent/autodesk_obj_enabler.jsp

The floor plan drawings provided in this solicitation were drawn utilizing the existing barracks dimensions. This drawn floor plan has a gross area of 23,746 square feet. Refer to Sec 2.3.20 for the 1st Floor Plan, 2nd Floor Plan, 3rd Floor Plan, and TYPICAL ROOM MODULES SHOWING DOUBLE & SINGLE OCCUPANCY.

The building's exterior color palette shall be compatible and complimentary to the facilities in the immediate area. The Presidio of Monterey's Department of Public Works shall have approval of the contractor's color scheme through the Contracting Officer.

General Guidelines: The general approach of the architecture is to develop a facility, which is sophisticated and modern with protected entrances and exits.

Metal railings and handrails shall be painted to match the color of the facility trim.

Screening of ground-mounted equipment shall be ***walls using the same finish materials as the adjacent building walls.*** ~~done by the use of walls constructed utilizing the same finish materials as the building's walls~~. The possibility of vehicular impact to these walls should be considered in determining the structural make-up of the walls.

Gates for special enclosures constructed around ground-mounted equipment shall be constructed of wrought iron bars the full height of the enclosure wall with 6-inch spacing between the bars. The gate shall be painted to match the building trim color.

inch deep counter with base cabinet and lavatory. Countertop, lavatory and integral backsplash shall be solid surface (See Sec. 2.3.13 for solid surface properties). Base cabinet shall consist of a combination of drawers and cabinets a minimum of two drawers 8 inches wide by 3 inches high, with the remaining areas under the vanity given to storage accessed by cabinet doors. Provide a minimum 18 inch by 24 inch by 4 inch surfaced mounted medicine cabinet with mirror with beveled edges to the lavatory. The medicine cabinet shall be hinged on the left side and shall include a minimum of three adjustable shelves. Provide two, wall mounted, 24 inch stainless steel towel bars, one adjacent to the toilet and one adjacent to the door. Bars shall be a minimum of ¾ inch diameter. Provide one door-mounted two hook robe hook with concealed fastenings and with a pin integral with or permanently fastened to wall flange. Maximum projection shall be 4 inches. Design shall be consistent with the design of the other accessory items. Provide heavy duty shower curtain rod. Provide a soap holder for bathtub that is made by the same manufacturer as the ceramic wall tile.

Closet:
Provide shelf with rod for hanging clothes. Provide a full-length mirror on the inside of the closet door.

Furring of walls:
The existing cmu walls shall be furred out with metal hat channels to accommodate and conceal electrical and communication lines Exterior walls shall receive foil-backed gypsum wallboard to increase the R-value of the walls for energy efficiency, along with rigid insulation.

~~Lounge~~ ***Rec/Admin (Small) Room*** Utilities: ***The requirements for the Rec/Admin (Small) room in this paragraph pertain to the building 841 base bid only. The Rec/Admin (Small) Room referred to in this paragraph is located adjacent to the Mechanical Room, but is one of two rooms (the smaller one) labeled on the floor plan as "Rec/Admin Room". If option #14 is provided then these Rec/Admin (Small) Room requirements are deleted:*** All utilities including HW, CW, drain, vent, gas, exhaust and electricity shall be installed to the ***Rec/Admin (Small) Room***~~lounge area~~rea and blanked off for future use of a stove, exhaust hood, and sink.

~~Building 645 suffered some localized damage to the exterior stucco on the south facing wall at the second and third floor janitor closets just outside of the breeze way. The stucco on this wall above the first floor shall be completely demolished and replaced in kind to match existing.~~

~~Building 645 and 646 have exhibited problems with water intrusion above the window heads between the second and third floors where the terra cotta accent bands occur. Investigation has suggested that the terra cotta accent bands are inadequately caulked between them and the lower window head terra cotta accent to prevent water intrusion. These joints shall be completely cleaned out of all existing caulk and any and all debris, then prepared for application of new caulking, and new caulking applied per caulk manufacturer's requirements, as to depth of caulking, width of caulking, and finish of caulking, typical all joints.~~

2.3.1.1 Interior Wall Construction

Interior wall partition rough construction shall consider the following types of construction.

The following are acceptable interior wall choices.

when the building is fully protected by a fire suppression system. This building shall have a complete fire suppression system.

Required means of egress such as corridors shall be enclosed as required by the Life Safety Codes. All hazardous areas within the building shall be enclosed as required by NFPA 101 Life Safety 2003 edition, and the 2000 International Building Code as well as other portions of these codes as dictated.

2.3.4.1 Fire Extinguisher Cabinets

Existing cabinets shall be left in place.

Special Note: The fire extinguishers for each cabinet shall be procured and installed by the contractor. Each extinguisher shall have a minimum rating of 4A:60B:C with all working parts to be made of metal.

2.3.5 Seismic Joint Covers

Where required, seismic joint covers shall be constructed of extruded aluminum with anodized satin finish for walls and ceilings and with standard mill finish for floor covers and exterior covers.

2.3.6 Insulation

Installed insulation shall be sized and detailed to provide the minimum values required by UFC 3-400-01 (Design: Energy and Conservation) and ASHRAE 90.1. Rigid insulation shall be used at the exterior walls within the new furred-out space of the new gypsum board finish.

2.3.7 Casework

All Casework / Millwork shall be manufactured in accordance with the WIC Manual of Millwork, latest edition, of the Woodwork Institute of California, required quality shall be custom grade, and all plastic laminate shall be high pressure decorative laminate (HPDL).

The WIC Guide Specifications located at the front of each WIC Product Section shall be reviewed and included as applicable.

Before delivery to the Jobsite, the Millwork supplier:

1. If a WIC licensee: shall issue a WIC certified compliance certificate indicating the millwork products being furnished for this project and certifying that they will fully meet all the requirements of the WIC grade or grades specified.
2. If **not** a WIC licensee: shall provide evidence that they have arranged for inspection by a WIC inspector after completion of fabrication and installation. If all conditions are found to be compliant, the WIC inspector will issue a WIC certified compliance certificate indicating the millwork products furnished for this project and certifying that they fully meet all requirements of the grade or grades specified.

The Contractor shall provide a schedule of casework for review.

2.3.8 Built up and Concrete Tile Roofing

The Concrete Tile Roof of building 841 will not be replaced. The Built-up roofs for building 645 and 646 will NOT be replaced.

2.3.9 Sheet Metalwork

Flashing shall be installed in conformance with the SMACNA Architectural Sheet Metal Manual.

2.3.10 Firestopping

Material shall have a flame spread of 25 or less, a smoke developed rating of 50 or less, and a fuel contribution of 50 or less when tested in accordance with ASTM E 84 or UL 723.

The materials shall be nontoxic to human beings at all stages of applications and during fire conditions.

Firestopping materials for through-penetrations of fire resistance rated construction shall provide fire resistance rating in accordance to ASTM E 814 or UL 1479.

Firestopping materials for construction joints in fire resistance rated construction shall provide a fire resistance rating in accordance to ASTM E 119 or UL 263. Construction joints include those joints used to accommodate expansion, contraction, wind or seismic movement of the building.

Material shall be non-combustible when tested in accordance with ASTM E 136.

2.3.11 Caulking and Sealants

~~Caulking and sealants shall be selected according to materials they are being applied to for compatibility~~. ***Provide caulking and sealants compatible with adjoining materials and substrate.*** These sealants and caulks shall be either a two-component, rubber base, chemical-curing compound based on polysulfide, and/or polyurethane; or a single-component, rubber base, chemical-curing compound such as polysulfides, polyurethanes, and silicones.

Caulking shall occur around all door frames, all window frames, and at all ***joints between dissimilar*** materials

~~changes~~. The minimum joint width shall be 6 mm (1/4 inch), and joint widths in excess of 6 mm (1/4 inch) shall have a backstop material provided in the joint, and the depth of all joints shall be equal to the width. Color of caulking and sealants shall match adjacent materials.

2.3.13 Replacement Exterior Windows

Windows shall be glazed with insulated glass with minimum 9 mm (3/8 inch) air space and shall conform to ASTM E 773 and ASTM E 774. Glazing shall have a maximum condensation factor of 48% in accordance with AAMA 1502.7.

Glazing shall use a minimum of (1/4-in) nominal laminated glass for all exterior glazed doors. The (3/8-in)laminated glass consists of two nominal (3/16-in) glass panes bonded together with a minimum of a (.060-inch) polyvinyl-butyral (PVB) interlayer. For insulated glass units, as a minimum the inner pane must be 6-mm laminated glass.

Window frames and mullions of aluminum or steel. To ensure that the full strength of the PVB inner layer is engaged, frames, mullions, and window hardware shall be designed to resist a static load of 7 kilopascals (1 lb per square in) applied to the surface of the glazing. Frame and mullion deformations shall not exceed 1/160 of the unsupported member lengths. The glazing shall have a minimum frame bite of 9.5-mm (3/8-in) for structural glazed window systems and 25-mm (1-in) for window systems that are not structurally glazed. Frame connections to surrounding walls shall be designed to resist a combined loading consisting of a tension force of 35-kN/m (200-lbs/in) and a shear force of 13-kN/m (75 lbs/in).

Frame shall have an organic coating shall be manufacturer's standard acrylic or polyester, bake-on, electro-statically applied enamel coating of 0.03 mm plus or minus 0.005 mm (1.0 plus or minus 0.2 mils) dry film thickness minimum. All coatings shall be factory applied.

Windows shall be operable. Bug screens shall be provided.

All window frames and sash shall be constructed with a thermal break feature.

Window sills shall be a solid surface material, minimum thickness ½ inch, cast, filled acrylic, not coated, laminated or of composite construction, meeting ANSI Z124-1980 and FS WW-P-541E/GEN. Material shall have minimum physical and performance properties specified. Superficial damage to a depth of 1/32 inch shall be repairable by sanding or polishing.

1. **Indoor Air Quality;** Indoor air quality is most effectively controlled through close coordination of architecture, interiors and MEP design strategies that limit sources of contamination before they enter the building. Construction procedures for IAQ and post-occupancy user guides also contribute to good long-term IAQ.

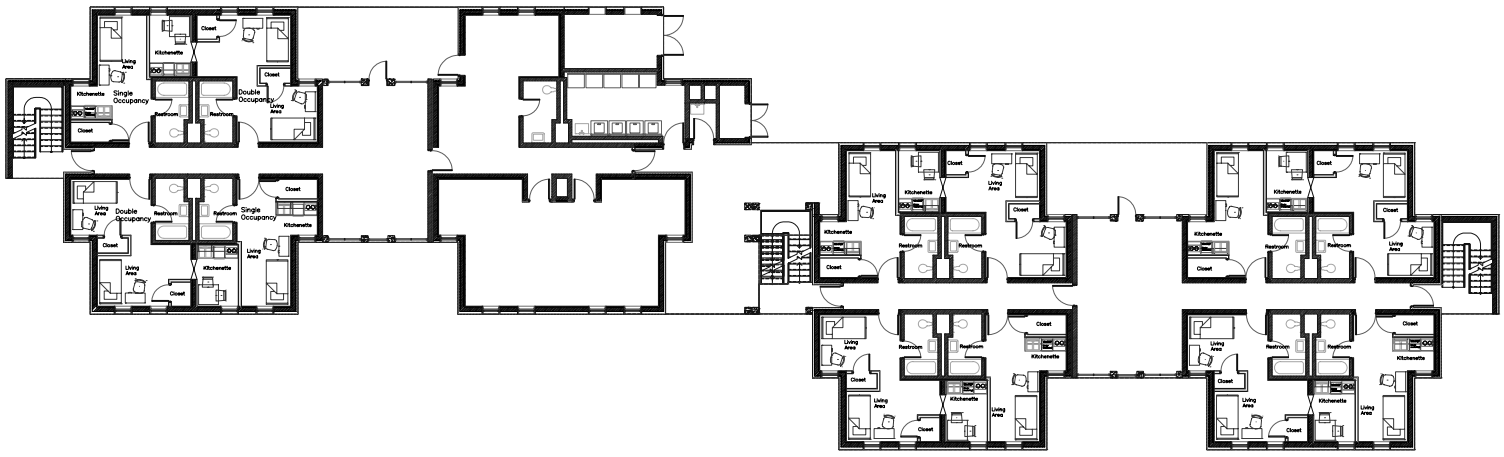
2. **Water:** Site design strategies that maximize natural filtration of rainwater and consideration. Water conservation is enhanced by low flow plumbing fixtures, water appropriate landscaping and HVAC and plumbing system design.

3. **Recycling and Waste Management:** Waste and inefficiency can be limited during construction by sorting and recycling demolition and construction waste, reuse of on-site materials and monitoring of material use and packaging. Accommodating recycling into building reduces waste while generating revenues.

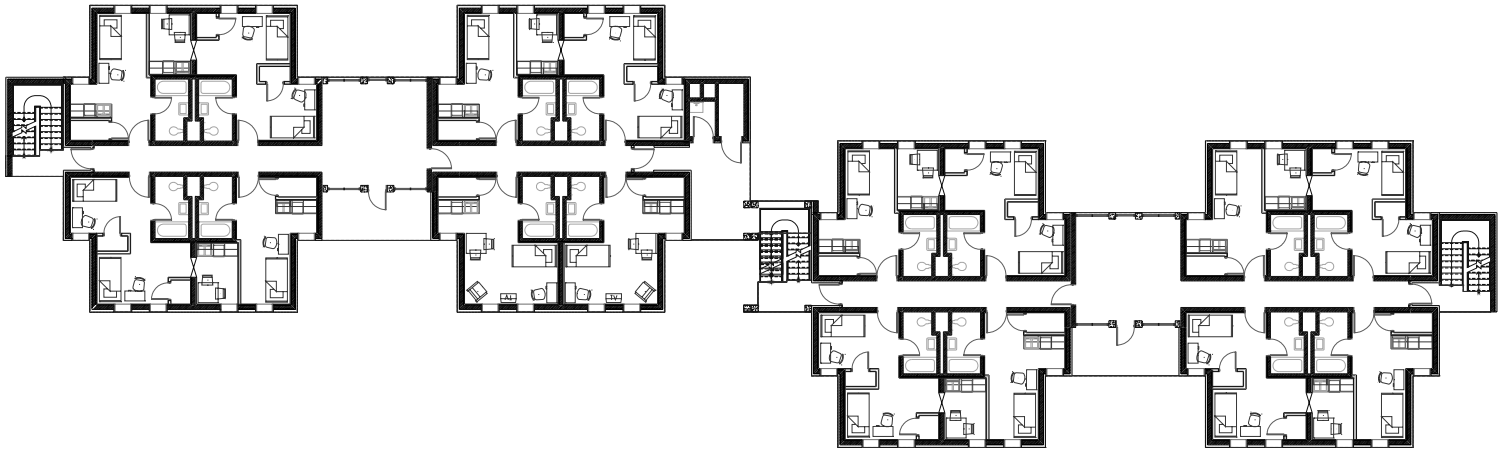
4. **Building Commissioning, Operations and Management:** Effective building commissioning is essential to ensure proper and efficient functioning of systems. Facilities operations benefit from the monitoring of indoor air quality and energy and water saving practices, waste reduction and environmentally sensitive maintenance and procurement.

2.3.20
Drawings:

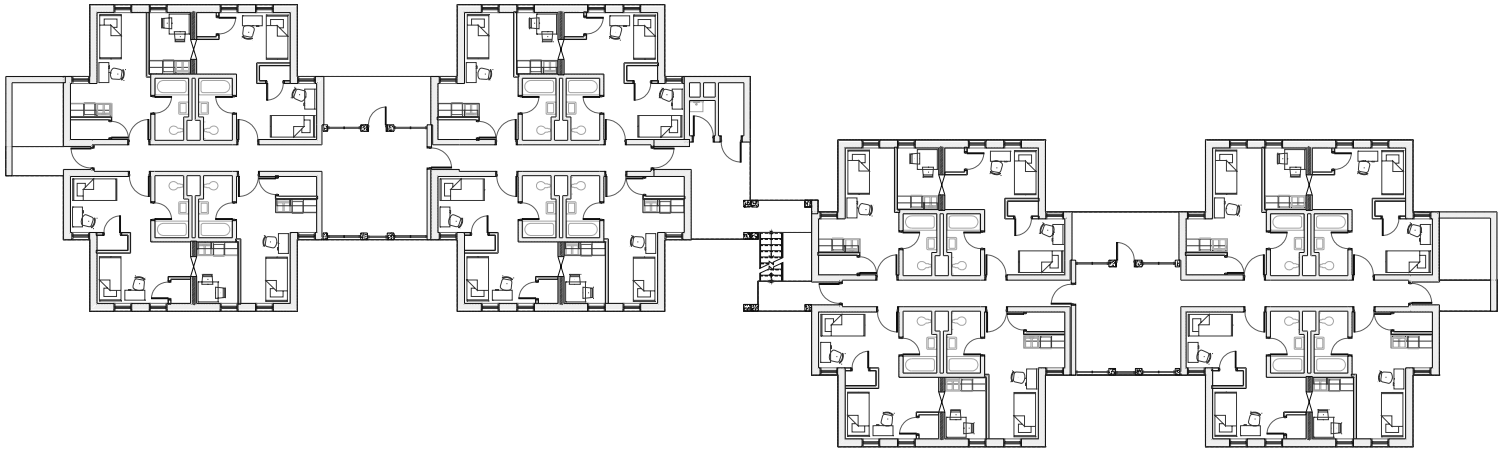
1st Floor Plan



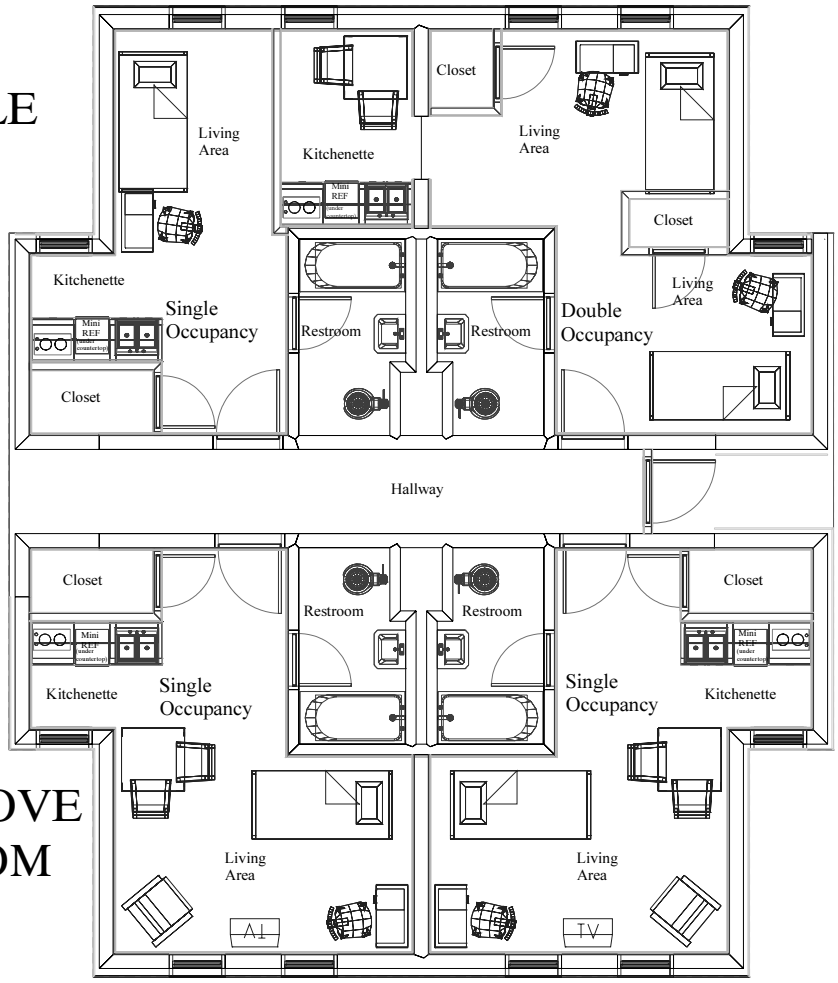
2nd Floor Plan



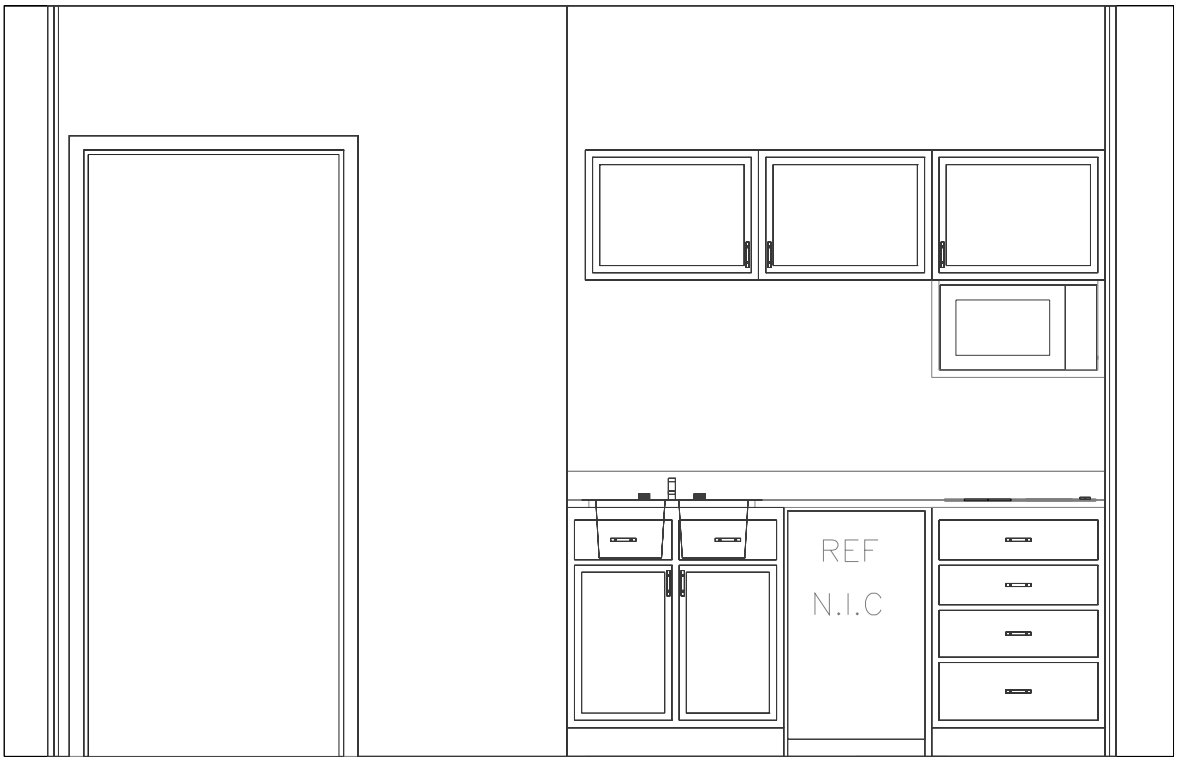
3rd Floor Plan



TYPICAL ROOM MODULES SHOWING DOUBLE & SINGLE OCCUPANCY

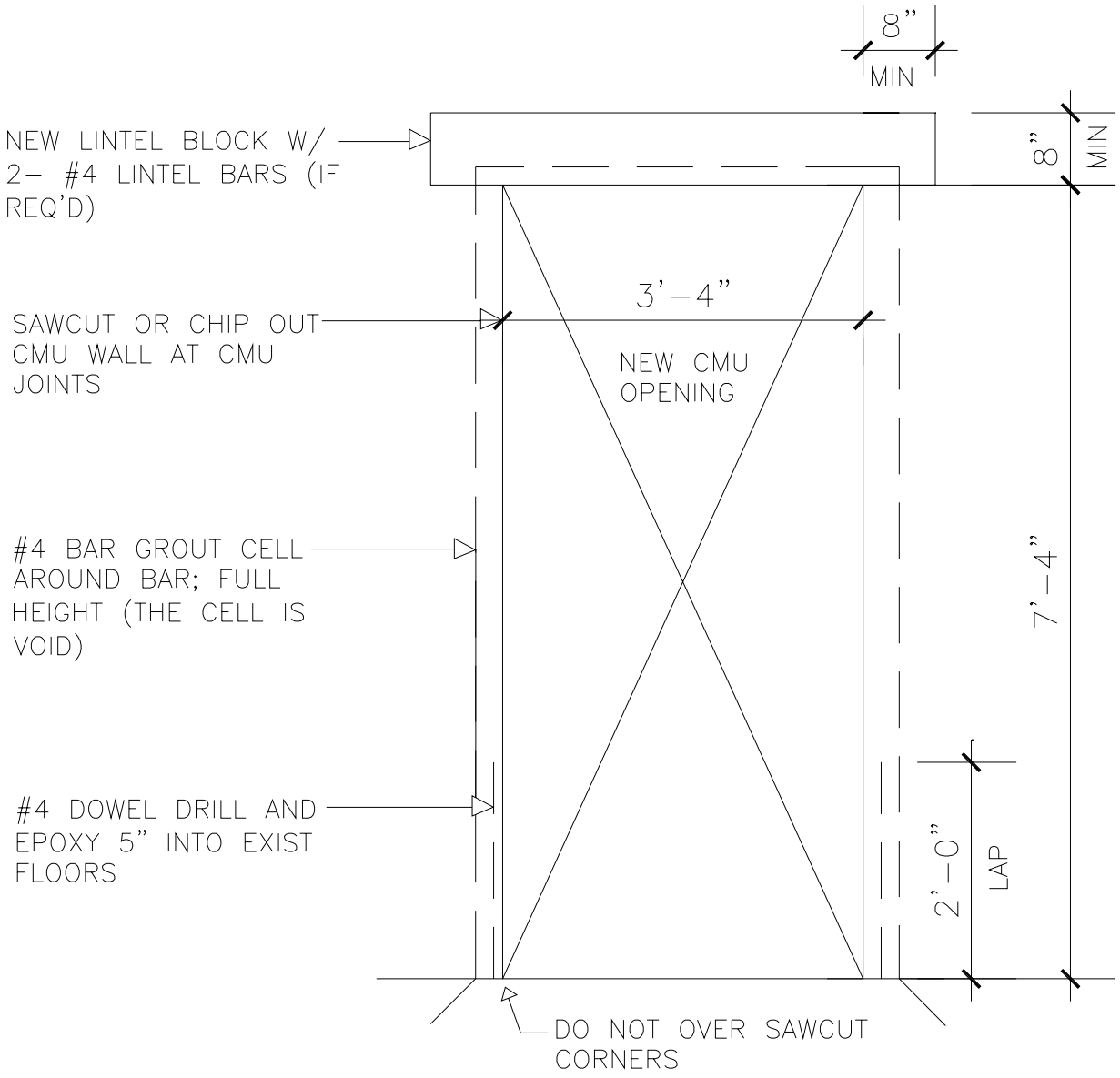


2-NCO ROOMS LOCATED ABOVE EXISTING RECREATION ROOM ON FIRST FLOOR (DUE TO STRUCTURAL CONDITIONS)



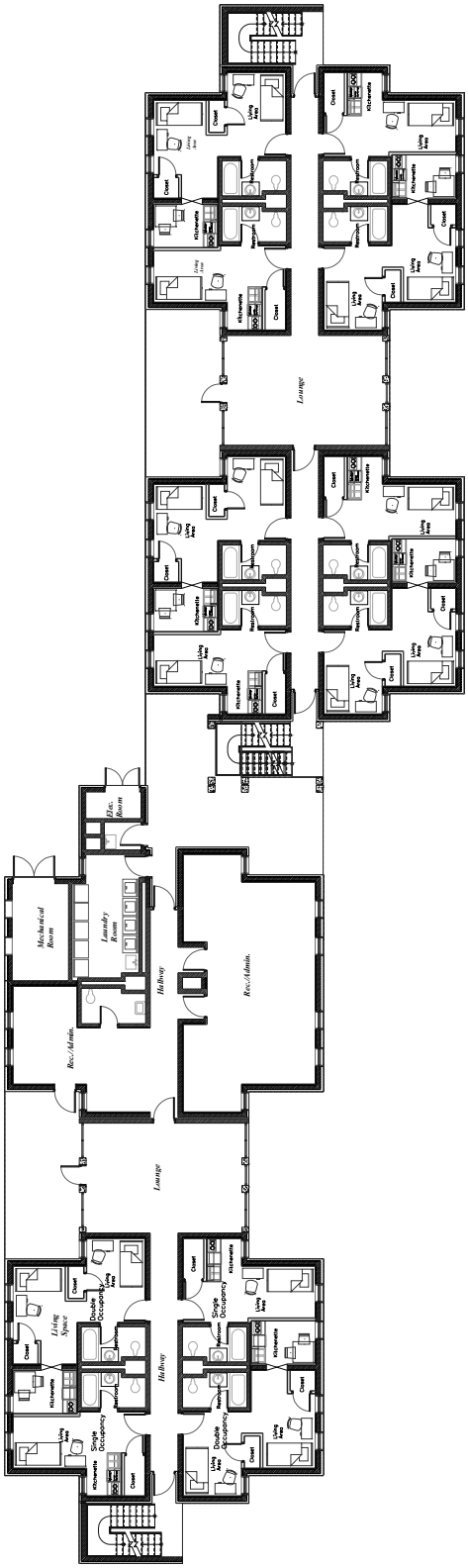
KITCHENETTE ELEVATION

NOTE: NEW LINTEL BLOCKS W/LINTER BARS AND JAMB BARS MAY NOT BE REQ'D IF NEW OPENING IS CLEAN CUT



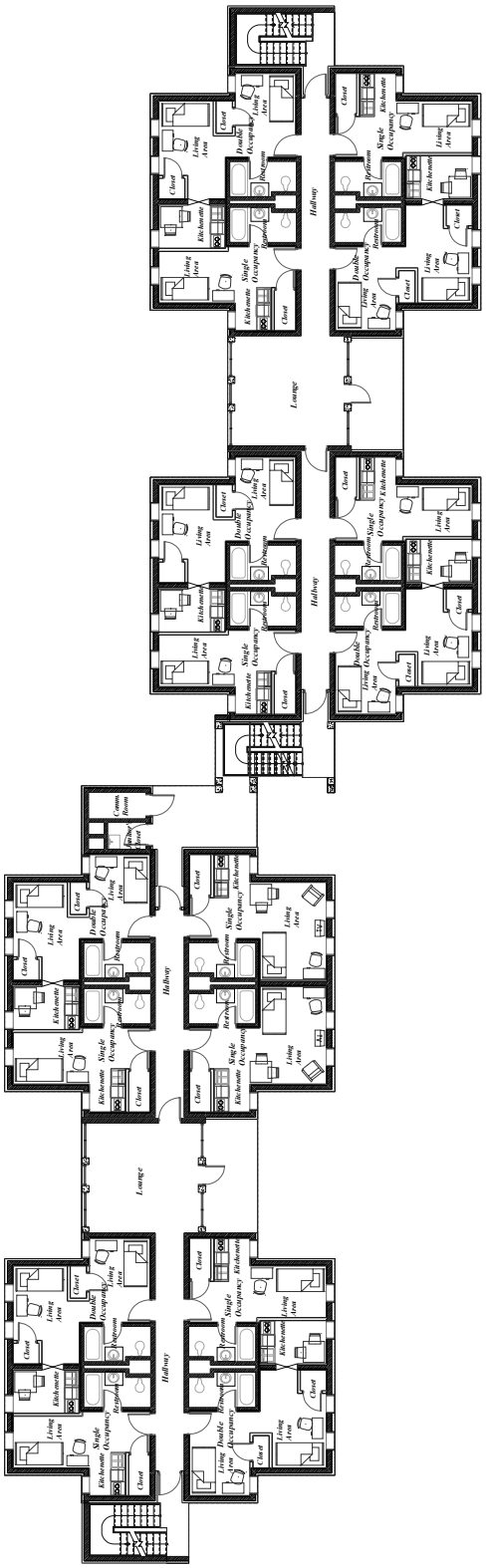
TYP NEW OPENING ON EXIST. CMU WALL
N.T.S

1st Floor Plan
Buildings 645 and 646

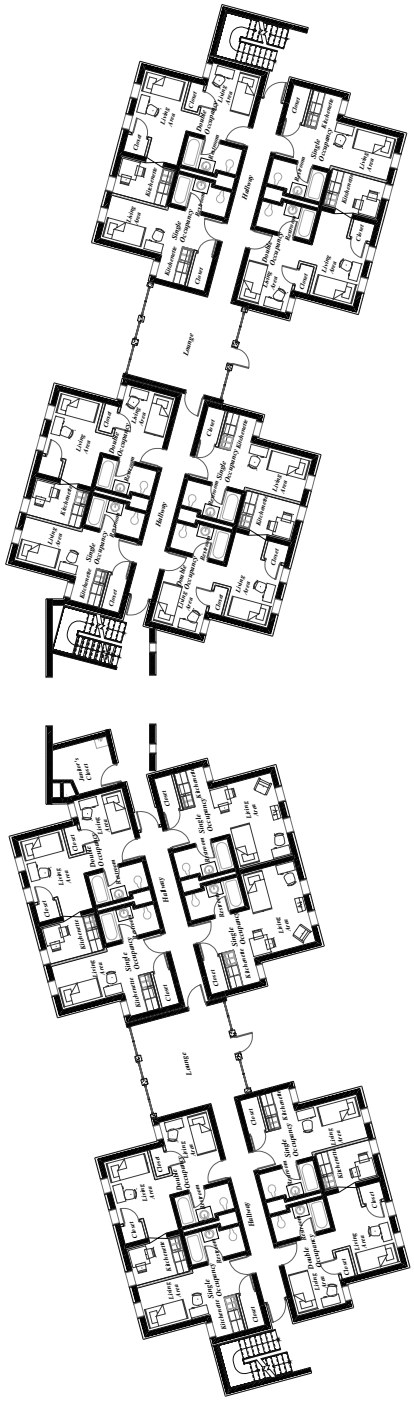


1st Floor Plan
Building 841

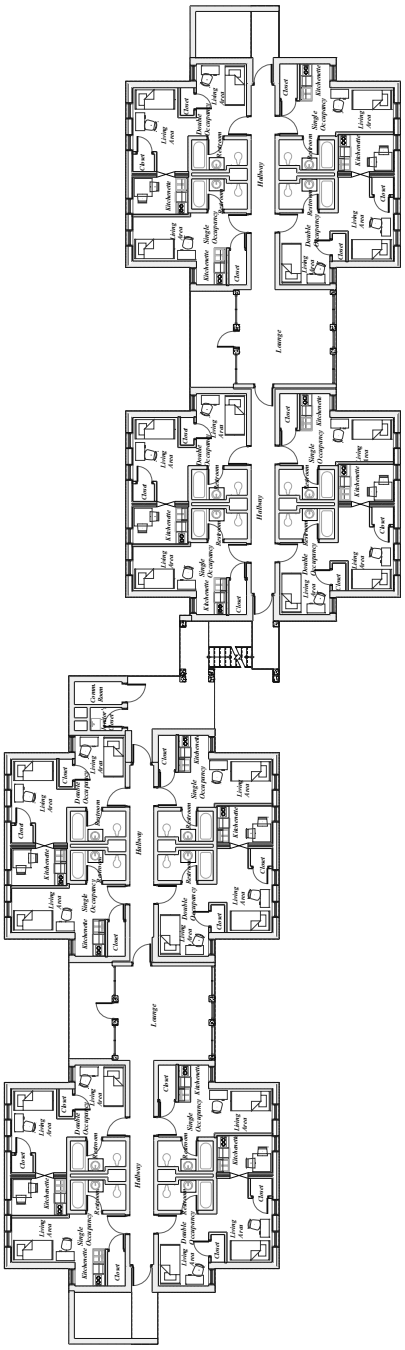
2nd Floor Plan
Buildings 645 & 646



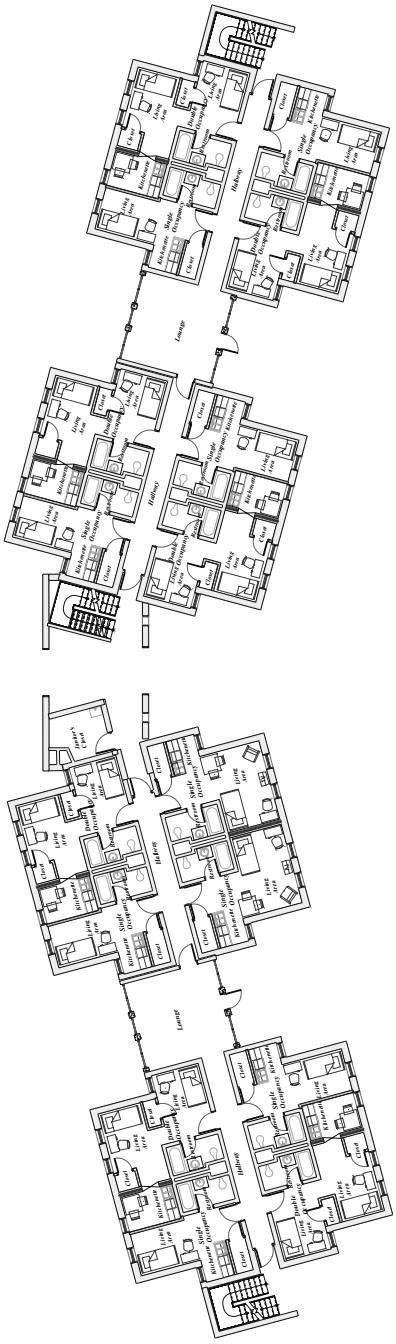
2nd Floor Plan
Building 841



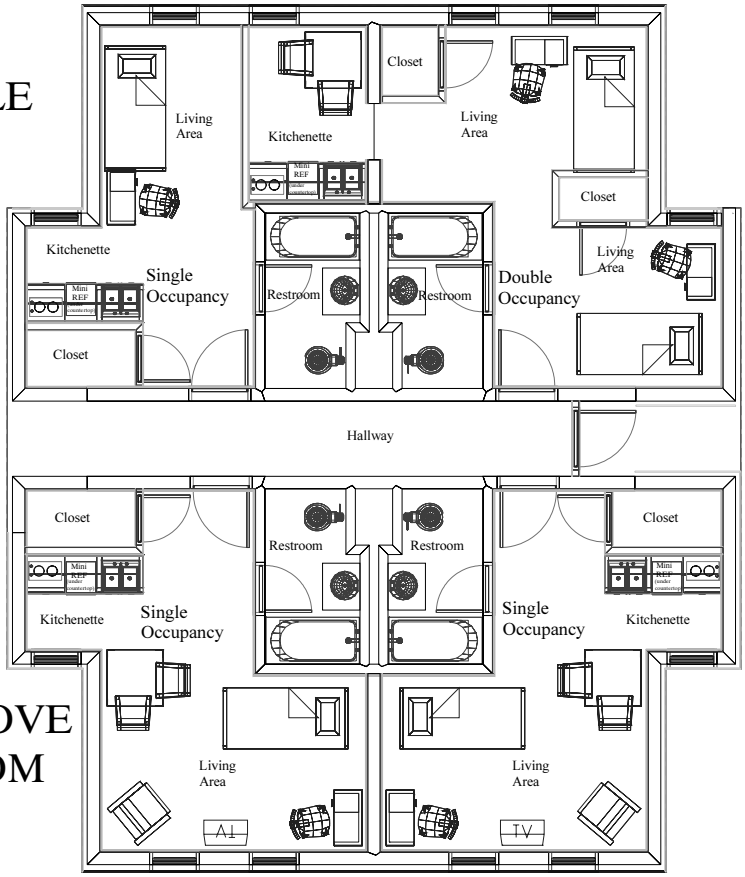
3rd Floor Plan
Buildings 645 and 646



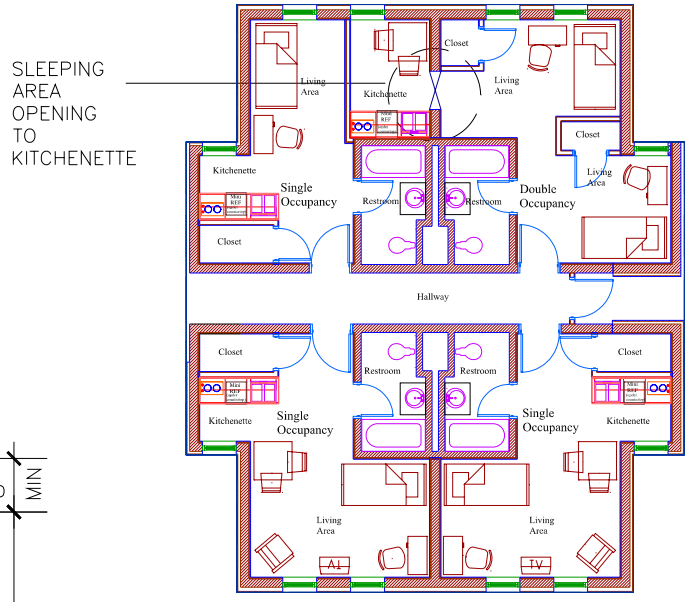
3rd Floor Plan
Building 841

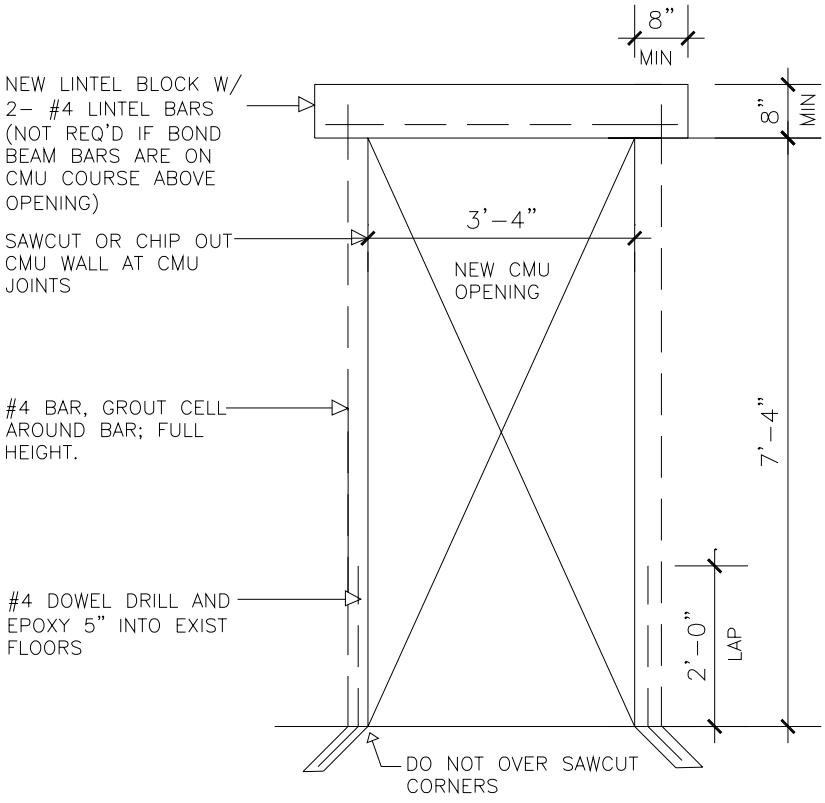


TYPICAL ROOM MODULES SHOWING DOUBLE & SINGLE OCCUPANCY



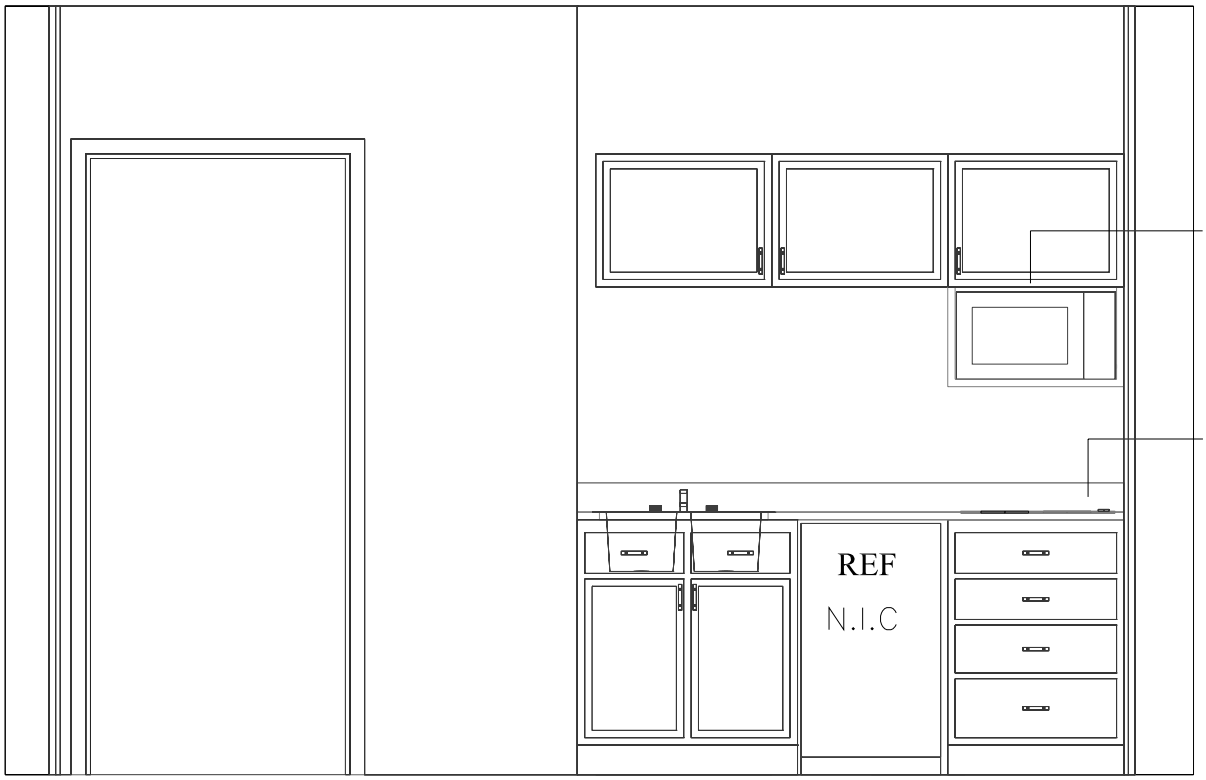
2-NCO ROOMS LOCATED ABOVE EXISTING RECREATION ROOM ON FIRST FLOOR (DUE TO STRUCTURAL CONDITIONS)





TYP NEW OPENING ON EXIST. CMU WALL
N.T.S

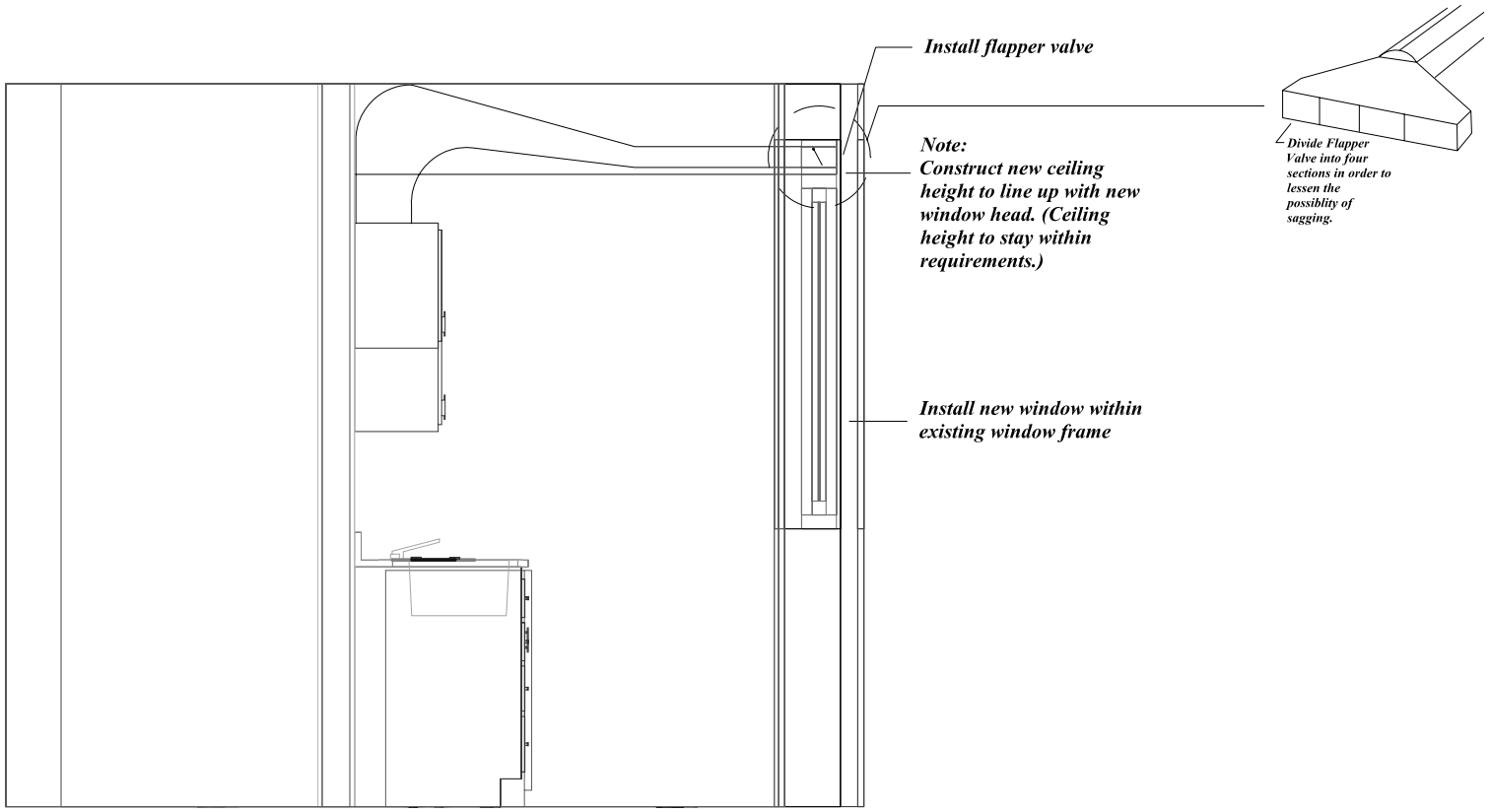
SLEEPING AREA OPENING TO KITCHENETTE DETAIL



Microwave Convection Oven has fan, light, and exhaust hood only in Buildings 645 and 646

Two burner top is only in Buildings 645 and 646

KITCHENETTE ELEVATION



KITCHENETTE SECTION

Buildings 645 and 646 Site Plan

Parking Notes:

(1.0) Remove 11 automobile and 10 motorcycle parking spaces at Building 645, 3 automobile spaces at Building 646, and 3 automobile spaces at Building 841 in locations shown on the attached diagram. (i.e. Asphalt pavement, along with concrete curb and gutter shall be removed back to the existing street and new concrete curb and gutter shall be incorporated along this street edge. In addition, replace soil and turf in this area.) [Please reference Civil Sheets, especially Sheet C-1, of "As-Built" drawing file set 193-25-163 for site information of Barracks Buildings 645 and 646. Note: Streets labeled as "Kit Carson Road" and "Barracks Road" on these As-Built drawings are currently identified as "SSG Fronaus Street". In addition, please reference Civil Sheets, especially Sheet C-1, of "As-Built" drawing file set 193-25-166 for site information of Barracks Buildings 841. NOte: Street is identified as Macarthur Road off Mason Road.]

(1.1) Design and construct a new parallel parking area, to accommodate 14 automobiles, along the west side of SSG Fronaus Street (i.e. Barracks Road on the As-Built drawings), across from Building 629 (below Building 645) and starting at the upper northwest corner. The area shall be surveyed and designed to fit the topography (i.e. grade for proper drainage and install retaining walls if necessary). At a minimum, the pavement section shall utilize 2-inches of asphalt on a 6-inch aggregate base.

Option (1) Design and construct a new diagonal parking area, to accommodate 14 automobiles, along the west side of SSG Fronaus Street (i.e. Kit Carson Road on the As-Built drawings), across from Building 646 and extending from the last existing space. The area shall be surveyed and designed to fit the topography (i.e. grade for proper drainage and install retaining walls if necessary). At a minimum, the pavement section shall utilize 2-inches of asphalt on a 6-inch aggregate base. Provisions will also need to be made to tie into the existing paved walking path at this location .

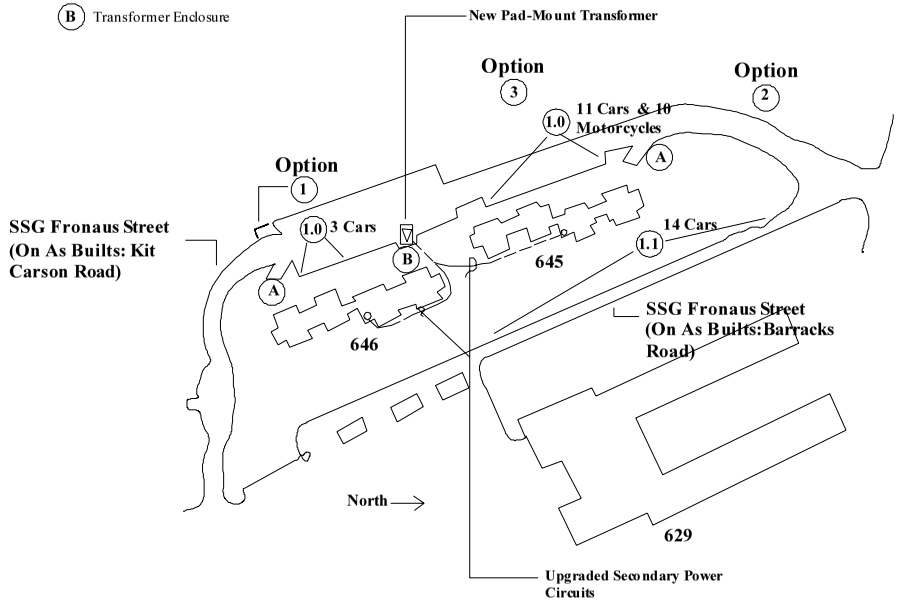
Option (2) Design and construct a new diagonal and/or parallel parking area, to accommodate 14 automobiles, along the west and/or east side of SSG Fronaus Street (i.e. Kit Carson Road on the As-Built drawings), down from Building 645 and extending up from the entrance intersection (Barracks Road on the As-Built drawings) to this area. The area shall be surveyed and designed to fit the topography (i.e. grade for proper drainage and install retaining walls if necessary). At a minimum, the pavement section shall utilize 2-inches of asphalt on a 6-inch aggregate base .

Option (3) Design and construct a new parking area, to accommodate 14 automobiles, on top of the hill west of SSG Fronaus Street (i.e. Kit Carson Road on the As-Built drawings), up from Building 645. Access would begin near the end of the entrance drive before the existing parking begins and be situated approximately 15 feet above the existing lot. The area shall be surveyed and designed to fit the topography (i.e. grade for proper drainage and install retaining walls if necessary). At a minimum, the pavement section shall utilize 2-inches of asphalt on a 6-inch aggregate base. Stairs shall also be provided for access to/from the existing parking area along SSG Fronaus Street.

Enclosure Notes:

(A) Trash Enclosure

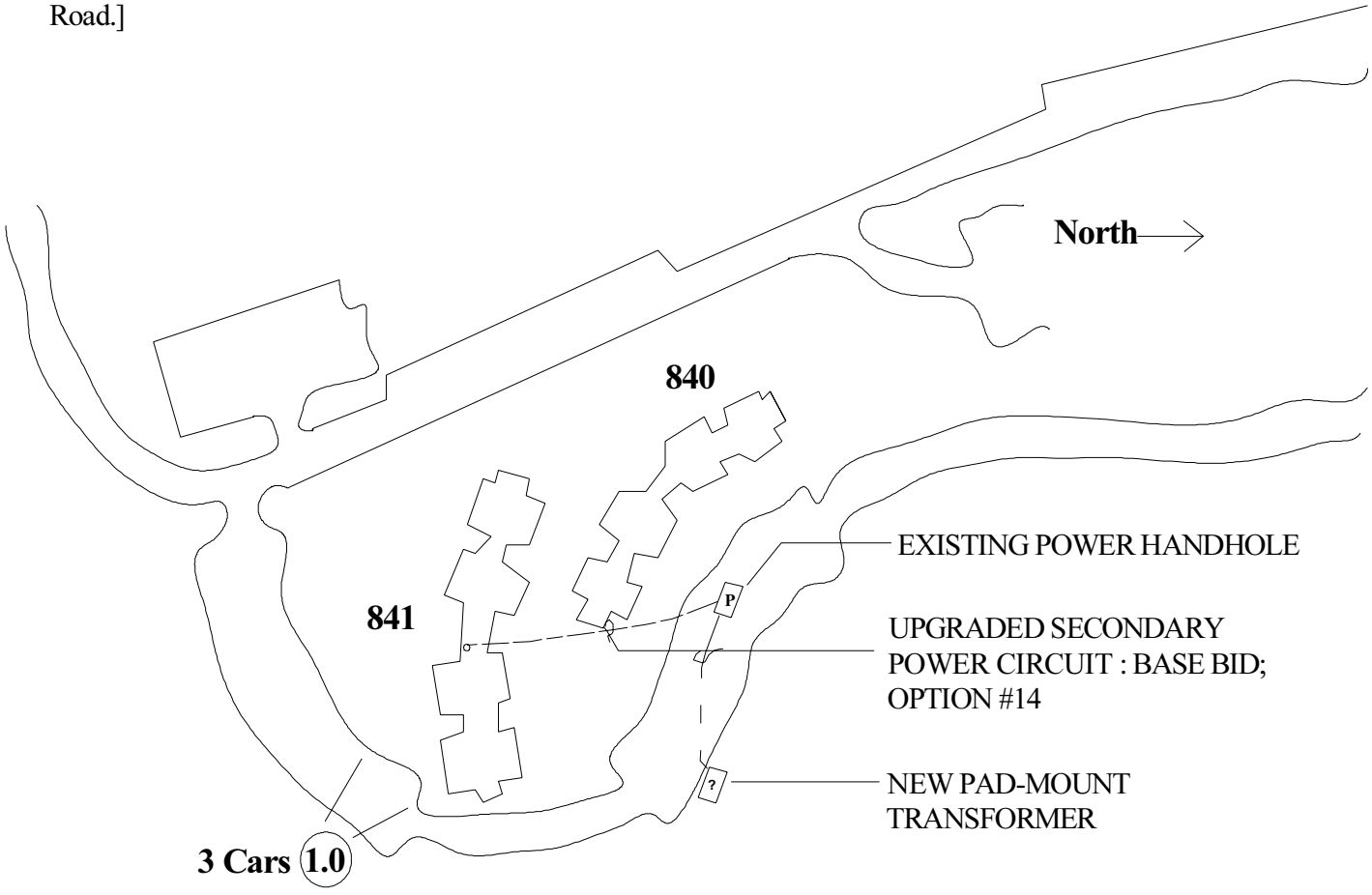
(B) Transformer Enclosure



Building 841 Site Plan

Parking Notes:

1.0 Remove 11 automobile and 10 motorcycle parking spaces at Building 645, 3 automobile spaces at Building 646, and 3 automobile spaces at Building 841 in locations shown on the attached diagram. (i.e. Asphalt pavement, along with concrete curb and gutter shall be removed back to the existing street and new concrete curb and gutter shall be incorporated along this street edge. In addition, replace soil and turf in this area.) [Please reference Civil Sheets, especially Sheet C-1, of "As-Built" drawing file set 193-25-163 for site information of Barracks Buildings 645 and 646. Note: Streets labeled as "Kit Carson Road" and "Barracks Road" on these As-Built drawings are currently identified as "SSG Fronaus Street". In addition, please reference Civil Sheets, especially Sheet C-1, of "As-Built" drawing file set 193-25-166 for site information of Barracks Buildings 841. NOte: Street is identified as Macarthur Road off Mason Road.]



appropriate controlling criteria are being adhered to. Justification for non-compliance with criteria must be provided in the Design Analysis. Color boards at this submittal stage shall contain, at a minimum, the primary carpet selection, basic wall and ceiling finishes.The Preliminary/Concept submittal shall consist of the following:

Preliminary (65%) Submittal Requirements
1. Design Analysis/Objectives
2. Color/Finish Schedule
3. Outline or Draft Specifications
4. Color Boards

2.4.3.6 Final (90%) Design Submittal

Submittals shall be organized in a logical manner to facilitate an orderly and fast review. Narrative data should be clearly written. Drawings and photographs shall be clear and concise. Recommend that materials be organized in the following sequence:

Final (90%) Submittal Requirements
1. Title Page
2. Table of Contents
3. Design Analysis/Objectives
4. Overall Floor Plan-Architectural
5. Color/Finish Schedule
6. Signage Plan
7. Electronic set of all Drawings/Plans/Schedules
8. Interior Color Boards

2.4.3.7 Corrected Final (100%) Submittal Requirements

Update and complete all information provided in previous submittal(s) listed above.

2.4.3.8 Coordination

Ensure that the same numerical and verbal labeling appears on all floor plans, schedules, and color boards.

2.4.3.9 Corrections to Submittals

The binders shall be submitted at each design phase to the Government for review. These review comments and the A-E's written responses should be provided in the front inside pocket of the first volume of the SID submittal binder. The designer should revise the binder after each review to respond to review comments. If the binders are not returned to the A-E after review the A-E may simply provide updated inserts to the Government.

2.4.3.10 Review Authority

Contracting Officer and the Using Agency.

2.4.3.11 Buy American Act (BAA)

Compliance with the Buy American Act (BAA) is mandatory. The BAA generally requires the use of construction materials and equipment from domestic sources in Government contracts less than ***$6,481,000***. Above ***$6,481,00***. Mexico and Canada are approved sources by the North American Free Trade Agreement (NAFTA). Above ***$7,304,733.00***, there are other countries that are covered by the Trade Agreements Act. If materials and equipment are required which cannot be obtained from approved sources,the CONTRACTING OFFICER (CO) will be notified early in the design phase and provided a market analysis and justification to obtain a waiver to the Buy American Act.

"Priorities of Government supply sources. Except as required by 8.002, or as otherwise provided by law, agencies shall satisfy requirements for supplies and services from or through the sources and publications listed below in descending order of priority prescribed in 41 CFR 101-26.107:

(1) Supplies.

(i) Agency inventories;
(ii) Excess from other agencies (see Subpart 8.1);
(iii) Federal Prison Industries, Inc (see Subpart 8.6);
(iv) Procurement lists of products available from the Committee for Purchase from the Blind and Other Severely Handicapped (See Subpart 8.7);
(v) Wholesale Supply sources such as stock programs of General Services Administration (GSA) (see 41 CFR 101-26.26.3), the Defense Logistics Agency (41 CFR 101-26.6, The Veterans Administration (41 CFR 101-26.704) and military inventory control points
(vi) Mandatory Federal Supply Schedules (see Subpart 8.4)
(vii) Optional use Federal Supply Schedules (see Subpart 8.4)
(viii) Commercial sources

2.4.4.1.2 Foreign Purchases: Part 25 of the DOD Supplement of the FARS includes restrictions and procedures affecting procurement of foreign-made items. Government sources often list foreign items, some of which have a "Buy American Differential" applied by GSA. This involves adding a price restriction (6-50%) to aid the balance of trade agreements with various foreign Governments.

2.4.4.1.3 Open Market Procurement: Open market procurement or local manufacture of an item shall be held to a minimum and used only when the scheduling is not available from an approved Government source or it constitutes a better value for the government. This source may require the designer to prepare drawings, specifications and justification for the item in question. The completed document shall be submitted to the procuring agency for advertising, bidding and award.

2.4.4.1.4 Multiple Award Schedule Justification: Sub-part 8.405-1 of the FARS requires that when multiple sources are provided to make available a selection of supplies or services to meet a requirement, the ordering activity must justify the purchase of other than the lowest schedule price. The designer is tasked with reviewing the multiple sources, evaluating the items, and selecting the item which best carries out the objective and is the best value for the government.

2.4.4.1.5 Waivers to Government Source: All interior design schemes should attempt to utilize Federal Prison Industries, Inc. (UNICOR), GSA stock or Federal Supply Service (GSA contracts with commercial manufacturers) items.

a. ~~When a designer determines that such items procured through Unicor sources will not serve the required purpose, a request for waiver will need to be prepared according to the standards set out in UNICOR's Waiver Policy. "Federal Prison Industries, Inc~~***The Interior Designer shall conduct market research to determine whether the UNICOR/FPI product is comparable in price, quality, and time of delivery to products available from the private sector. If determined that UNICOR/FPI product is not comparable, competitive procedures shall be used for the procurement of the product. A timely offer from UNICOR/FPI shall be considered in accordance with the specifications and evaluation factors specified in the solicitaion, per DFAR Part 208, Subpart 208.6 (a)***.

b. When a designer determines that such items procured through GSA sources will not serve the required functional purpose, designer shall request assistance from procurement officer

2.4.4.1.6 Maximum Order of Limitation (MOL): A purchase order for items from GSA sources cannot exceed the amounts shown in the contractor's

2.6 Mechanical Design

2.6.1 Heating, Ventilating, and Air Conditioning (HVAC)

2.6.1.A

Permits: The Contractor shall coordinate with the Directorate of Environmental and Natural Resources (P.O.C) is Mark Reese, 831-242-7925) for permits required due to the design of the mechanical systems (i.e. Permit to Construct and Permit to Operate). The Contractor shall fill out, submit, and pay for all permits required. To download forms and for information on fee structure, go to the following WEB site: http://www.mbuapcd.org/ (Monterey Bay Unified Air Pollution Control District).

2.6.1.1 General:

A. General Statement Of Work:

Unless otherwise noted herein, the renovation of the HVAC systems described below shall apply to all barracks: building 645, 646, and 841.

B. Built-in Electric Cooktop (does not apply to Barracks 841)

For each bedroom (see Architectural write-up also), provide a built-in, 2-burner electric cook top. Features to include the following:

- Stainless steel cooktop finish
- One 6 heating element and one 8 heating element
- Removable one-piece drip bowls and trim rings
- Surface element on indicator lights
- Upfront controls
- Stainless steel color appearance
- 2.5 KW maximum rating at 208V (see electrical write-up)

B.1. Over-the-Range Microwave Oven/Hood Combo (Barracks 841 shall only have a built-in microwave, maximum 1500 watts at 120 V, and exhaust ductwork plumbed/ installed for future connection to a “Over-the-Range Microwave Oven/Hood Combo,” see architectural write-up. ~~Exclude “Microwave Oven/Hood Combo” for this contract.~~)

For each bedroom (see Architectural write-up also), provide a built-in, residential grade, over-the-range microwave oven/hood combo. Features to include the following:

Commissioning of all new and retrofitted HVAC systems is required and the use of UFGS 15995A, COMMISSIONING OF HVAC SYSTEMS is mandatory. The "Design Agent's Representative" will be included as a member of the commissioning team for the pre-commissioning checklists and will participate in the functional performance tests. The following representatives will participate in the commissioning process:

Contractor's Chief Quality Control Representative
Contractor's Mechanical Representative
Contractor's Electrical Representative
Contractor's Testing, Adjusting, and Balancing Representative
Contractor's Controls Representative
Design Agent's Representative
Contracting Officer's Representative
Using Agency's Representative

U. Training: Contractor shall include a training period for maintenance personnel as determined by the Department of Public Works (DPW). The training period shall be a minimum of six (6) hours of on-site instructions per day for up to two (2) days (A minimum of 12 hours total), ***for a minimum of 4 personnel.***

V. Backflow Preventers~~: Separate r~~ ***R***educed pressure backflow preventers shall be installed ~~on~~ ***for*** equipment requiring building potable water for make-up to prevent internal cross-contamination of the domestic water system if not already provided.

W. Insulation, Heating Water Pipes: Insulation for hot water piping in the mechanical room was either damaged or missing. All hot water piping insulation shall be mineral fiber that complies with ASTM C 612, ASTM C 553, and ASTM C 547. Cellular glass shall comply with ASTM C 552. Heating hot water less that 4 inches in diameter shall be insulated with 2 inches of mineral fiber or cellular glass. Hot water pipes 4 inches in diameter or greater shall be insulated with 3 inches of thick mineral fiber or cellular glass. All pipe hangers for insulated pipes shall utilize high-density inserts and shields (or saddles) to protect the pipe insulation.

2.6.1.2 Heating:

Ventilation rates shall remain as shown on “as-built” drawings. Ventilation for Laundry Room shall be 15 cfm/person.

2. Design Conditions, Exhausting:

Electrical Rooms	Minimum: 10 air changes/hour when above 80 F
Mechanical Rooms	Minimum: 10 air changes/hour when above 90 F
Communication Rooms	Minimum: 10 air changes/hour when above 80 F
Laundry Rooms	See “D. Public Laundry Rooms:” paragraph below

C. Mechanical Rooms: All mechanical rooms are currently **not** equipped with exhaust fans, provide an exhaust fan for each room. The room exhaust system shall consist of wall-mounted fan(s) and shall operate only in the summer when the inside temperature is 90 degrees F or above. The exhaust fan shall be controlled by a wall-mounted thermostat, and makeup air shall enter through ***either a new*** wall or door louvers.

C.1. Barracks 841: replace existing corroded fully louvered mechanical door with new door louver. Paint or provided louver finish that will resist salt water atmosphere. Wall louvers in mechanical room have been blocked off with plywood. Remove plywood and if necessary, the louvers shall be cleaned of any rust and painted. Paint color shall match existing louver colors.

D. Public Laundry Rooms:

D.1. The dryer exhaust fan for Barracks 841 is still operational and is located in the mechanical room.

D.2. The “as-built” dryer exhaust fans for both Barracks 645 and 646 are non-operational and are still located in the mechanical rooms. The dryer exhaust fans for Barracks 645 and 646 are being exhausted by wall mounted PRVs. The PRVs are mounted where the laundry room exhaust fans were located on the “as-built” drawings.

2.6.2.1 General:

A.

Unless otherwise noted herein, the renovation of the plumbing systems described below shall apply to all barracks: building 645, 646, and 841.

~~C.~~

C.1. Disposer

A residential grade 1/2 horsepower disposer shall be provided for all kitchen sinks. Unit to have stainless steel impellers, and corrosion resistant grind chamber, wall switch control, continuous feed, dual swivel and jam resistant impellers, manual reset overload, and splash guard. 4.5 A maximum at 120 V (see electrical write-up for discussion).

F. ***All new*** ~~Any~~ appliances (electric stoves, refrigerators(s), ~~ice-machines(s), vending machine(s),~~ etc.) in any area (see Architectural write-up), shall ~~have~~ ***be provided with*** the necessary utility connections (gas, waste, water, etc).

G. Domestic hot and cold water shall be required at all fixtures except the water fountains and coolers, water closets, and urinals where only domestic cold water is required. For the HVAC equipment, makeup water shall be required for the boilers. Waste lines shall be required for all fixtures. A gas-fired boiler and water heater shall generate heating hot water and domestic hot water.

H. References: Plumbing systems shall be installed in accordance with the latest edition of the International Plumbing Code (ICC) and comply with NFPA 30, 31, 54, and 70. Inspection and testing of the plumbing system shall be performed as prescribed in the plumbing code. Seismic protection for the plumbing systems shall be based on the latest International Building Code (IBC) and TI 809-04, Seismic Design for Buildings. Additional referenced standard~~s~~ shall include the~~ Americans With Disabilities Act, Uniform Federal Accessibility Standards, and~~ applicable Occupational Safety and Health Act (OSHA) regulations.

I. Materials and Equipment: Materials and equipment shall be standard catalog products of manufacturers regularly engaged in production of such

materials. All selected equipment shall be manufacturer's latest standard model.

J. Seismic Requirements: All plumbing systems shall be seismically protected in accordance with the International Building Code (IBC) and TI 809-04, Seismic Design for Buildings.

K. Submittals: Submittals shall be provided by the Contractor to the Contracting Officer for approval in accordance with the procedures provided at the beginning of this document.

1. Calculations, Drawings, and Specifications: Installation of the plumbing equipment shall not begin until such time that all the calculations, drawings, and specifications are returned stamped "APPROVED."

2. Operation & Maintenance (O&M) Manuals: Six (6) complete copies of the O&M manuals in bound 8.5 inch by 11 inch booklets shall include a brief description of all equipment and their basic operating features, piping and equipment layouts, the manufacturer's name, model number, service manual, parts list and simplified wiring and control diagrams of the systems as installed. In addition, the booklets shall list step-by-step procedures required for system startup, operation, shutdown, routine maintenance procedures, possible breakdowns and repairs, and a trouble-shooting guide.

2.6.2.2 Plumbing Fixtures and Equipment: To minimize future maintenance efforts and associated costs, reference paragraph: Maintenance Considerations.

A. Plumbing Fixtures, General: All new fixtures shall be water conservation type, in accordance with UFGS Section 15400-PLUMBING, GENERAL PURPOSE. Fixtures shall be provided complete with fittings. All fixtures, fittings, and trim in a project shall be from the same manufacturer and shall have the same finish. Faucets shall be equipped with high efficiency faucet aerators. All faucets, faucet handles, and miscellaneous trim shall be of metal construction with a polished chrome finish.

1. Lavatory Sink Faucets: Faucet shall be center set single-lever type with seals and seats combined in one replaceable cartridge or having replaceable seals and seats removable either as a seat insert or as a part of a replaceable valve unit. Water flow for manually operated faucets shall not exceed 2.5 gpm at 80 psi

2. Countertop Lavatories: All wall hung lavatories as depicted on the “as-built drawings” shall be replaced with countertop lavatories. Lavatories shall be manufacturers standard sink depth, enameled cast iron or vitreous china, oval type, as indicated on the drawings, and shall comply with ASME A112.19.1M or ASME A112.19.2M. Strainer shall be copper alloy or stainless steel.

3. Water Closets: All water closets shown on “as-built” drawings shall be ***replaced with*** either a one or two piece residential grade flush tank ***water closets***. Water closets shall be the floor-mounted elongated vitreous china bowl type with minimum 2 inch passageway, siphon jet bowl, and white closed-front seat and cover. The maximum water use per flush is 1.5 gallons.

4. Electric Water Coolers:

Existing electric water coolers are large and have an institutional appearance. Replace all electric water coolers with ***Haws*** model HWS13SS or equal. Salient features: 12.5 gallon per hour, compact, wall mounted, stainless steel cabinet approximately 14-7/8", low energy usage, a high displacement compressor, a counterflow cooling evaporator/chiller, efficient capillary sizing, a large capacity dryer-strainer, a fan-cooled condenser with maximum heat exchange, a wire service cord and polarized plug, 115V, 60 Hz, environmentally friendly R134a refrigerant. Capacity based on ARI standard rating conditions of 80°F inlet water temperature, 90°F room temperature, 50°F drinking water temperature. Lead-free by all known definitions including ANSI/NSF Standard 61, Section 9, California Proposition 65 and the Federal Safe Drinking Water Act.

5. Kitchen Sink: Provide a double bowl ***18 gauge*** stainless steel sink for each bedroom. Sink dimensions shall be approximately 29 inches long x 18 inches wide ***x 5-1/2 inches deep*** to accommodate architectural dimensions (refer to architectural write-up for additional discussions). Sink shall be self rimming stainless steel ledge and seamlessly drawn. Sink shall be fully undercoated to dampen sound and prevent condensation. Sink to have four holes. Provide with 12″ swing spount, separate hot and cold water cross handles, and retractable hand spray, brass valve bodies, polished chrome finish. Sink to accept disposer.

6. Bath Tubs: 20 percent of the bath tubs will be replaced in kind, enameled cast iron. ***Contracting officer will decide which 20% of the overall (all three barracks) are to be replaced.***

B. Domestic Hot Water Heating System: Currently the domestic hot water is supplied by the boiler that circulates water to a shell-and-tube heat exchanger within a domestic hot water generator. Building occupants have stated that the existing domestic hot water heating system is not adequate. Therefore, recalculate the hot water demand per ETL 1110-3-489, Engineering and Design, DOMESTIC WATER HEATERS FOR BARRACKS, 3 April 1998, refer to attachment # 12 of this RFP. Also refer to paragraph “2.6.1.2 Heating:, C. Boilers:” for boiler discussion. Regardless of what the calculations reveal, the capacity of the current domestic hot water capacity will be increased by a minimum of 25 percent. If, calculations show a higher percentage, then that percentage will be used to increase the domestic hot water capacity. As noted in paragraph “P. Maintenance Considerations,” contractor may use alternative domestic hot water heating system as noted below. Domestic hot water calculations and the type of domestic hot water system consider with any significant impacts will be provided during the design review phase for approval. The government shall have final “say” on the size/capacity of the domestic hot water heater system that will be actually used. However, the size will not increase beyond the 25 percent increase as stated above or the contractor’s actual calculations. When water storage temperatures are above 120 degrees F, a

thermostatic, pressure-balanced, or combination thermostatic and pressure-balanced type mixing valves shall be used to ~~obtain~~ ***deliver hot*** water temperatures below 120 degrees F, see paragraph: Thermostatic Mixing Valves.

1. Automatic Storage Type: If employed, water heater shall be self-contained with storage tank, heater, controls, and safety features as a minimum and shall have ASME rated combination pressure and temperature relief valve. Gas-fired water heaters shall conform to ANSI Z21.10.1 when input is 75,000 BTU per hour or less or ANSI Z21.10.3 for heaters with input greater than 75,000 BTU per hour. A phenolic resin coated storage tank shall be provided***, unless glass lined.***

2. Indirect Heater Type: If employed, water heaters shall be assembled with a dedicated or dual purpose HVAC hot water boiler, storage tank, controls, and safety features as a minimum. Unless an HVAC boiler is used for the heat source, high temperature hot water (HTHW) heaters with storage systems shall be the assembled product of one manufacturer and be ASME tested and "U" stamped to code requirements under ASME BPV VIII Div 1. Hot-water storage tanks shall be constructed by one manufacturer; ASME stamped for the working pressure, and have the National Board (ASME) registration. The storage tank shall be cement-lined or glass-lined steel type in accordance with AWWA D100. The heat loss shall conform to the requirements of ASHRAE 90.1. Each tank shall be equipped with a thermometer and pressure gauge. The tank heat exchanger shall be double wall***ed*** ~~only~~. The tank coil shall be coated with a phenolic resin coating.

3. Thermostatic Mixing Valves: Thermostatic mixing valves shall be located in the mechanical room next to the water heaters and shall be designed and manufactured specifically for domestic hot water temperature control. Thermostatic mixing valves shall be capable of maintaining a constant 110 F, plus or minus ~~2 C (~~plus or minus 1 F~~)~~, water temperature under minimum and maximum hot water demands. The thermostatic mixing valve shall be equipped with a separate low-demand valve and a high-demand valve to ensure water temperature reliability at different flow rates.

4. Hot Water Circulating Pumps: Circulating pumps shall be electrically driven, single stage, centrifugal, equipped with mechanical seals, and suitable for the intended service. Pumps shall be controlled by a sensor on the recirculation lines set for approximately 106 F. Pump capacity may need to be increased due to domestic hot water issues discussed above.

2.6.2.3 Domestic Water Piping: All domestic water piping shall be concealed. Stops will be provided on water supply lines to all plumbing fixtures except showers. All above grade water piping shall be installed inside the building thermal envelope.

A. Pipe: Copper joints shall be soldered with wire solder of 95 percent tin

and 5 percent antimony. Dielectric isolation shall be provided ***for*** water heaters and between all equipment with dissimilar metals.

1. Above Ground Water Piping: All above ground piping shall be Type L hard-drawn copper. Fittings for hard-drawn copper shall conform to ANSI B16.22, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

2.6.2.4 Natural Gas Distribution System: If current natural gas line is not sufficient in size, increase line size and all associated appurtenance (i.e., gas meter, regulators, valves, fittings, etc.). Installation of the gas system shall be in accordance with NFPA 54, the National Fuel Gas Code, UL-06, the Gas and Oil Equipment Directory, and all local/seismic codes.

A. Piping: All above ground gas piping shall be schedule 40 black steel. All underground direct-buried lines shall be polyethylene with tracer wire. The use of semi-rigid tubing and flexible connectors is prohibited except for final connections to gas equipment and appliances. Buried pipe under the building shall not be permitted.

B. Gas Connections: Final connections for gas equipment and appliances shall be made using flexible connectors conforming to ANSI Z21.45. Flexible connectors shall be all metal construction manufactured for gas equipment and appliances and not more than 3 feet long. Accessible gas shutoff valves and couplings shall be provided for each gas equipment and appliance connection.

2.6.2.5 Insulation: All pipe hangers for insulated pipes shall utilize high-density inserts and shields (or saddles) to protect the pipe insulation.

A. Domestic Water Piping: ***New d***omestic Hot water pipes shall be insulated. as per paragraph: Insulation, Heating Water Pipes, except as follows: pipes 2 inches or smaller shall be insulated with 1 inch thick mineral fiber or 1.5 inches thick cellular glass and pipes 2.5 inches or larger shall be insulated with 1.5 inches thick mineral fiber or 2.5 inches thick cellular glass. Domestic cold water piping shall be insulated with a vapor barrier with either mineral fiber complying with Fed. Spec. HH-I-558 or cellular glass complying with ASTM C 552. Pipes 5 inches or smaller shall be insulated with 0.5 inch thick mineral fiber or 1 inch thick cellular glass and pipes 5 inches and larger shall be insulated with 1 inch thick mineral fiber or 1.5 inches thick cellular glass. Where the specified insulation thickness for domestic water pipes is too large for concealment in chase walls, the thickness may be reduced. Where domestic pipe runouts to fixtures occur, the insulation may be omitted. Condensate drain piping shall be insulated.

2.6.2.6 Waste Piping: All sanitary piping shall be concealed. The minimum rough in size for waste lines shall be 2 inches except for water closets where the minimum size shall be 4 inches. Each fixture and piece of equipment, except water closets and urinals, shall be provided with a trap.

A. Drain, Waste, and Vent Piping: Drain, waste, and vent piping shall be either cast iron (hub or no hub) or ABS in accordance with ASTM D 2661 (no cellular core).

B. Waste Traps: Traps for lavatories shall be chromium-plated, adjustable-bent tube, 20 gauge brass, or ABS ***(if meets NFPA installation requirements)*** in accordance with ASTM D 2661 (no cellular core).

C. All existing domestic waste lines shall be “snaked” to remove deposit build-up.

2.6.3 Fire Protection:

2.6.3.1 General:

A. General Statement Of Work:
Unless otherwise noted herein, the renovation of the fire protection systems described below shall apply to all barracks: building 645, 646, and 841.

A.1. The entire barracks shall be protected by a wet pipe sprinkler system.

A.2. Each stairwell shall have a wet standpipe (required by AHJ).

A.3. Provide supervised tamper switches for all existing O.S.Y. gate valves ***(approximately two/building)***. These valves are not shown on the "as-built" drawings but were added later along with the reduced pressure backflow preventer for each barracks.

B. References: All systems shall be hydraulically calculated in accordance with the latest edition of NFPA 13, 13R, 14, and UFC 3-600-01, DESIGN: FIRE PROTECTION ENGINEERING FOR FACILITIES. Materials and equipment shall have been tested by Underwriters Laboratories (UL) and listed in UL-04 or approved by Factory Mutual (FM) and listed in FM P7825.

C. Materials and Equipment: Materials and equipment shall be standard catalog products of manufacturers regularly engaged in production of such materials. All selected equipment shall be manufacturer's latest standard model. ~~Reference paragraph: HVAC and ensuing HVAC paragraphs for fire protection requirements of mechanical equipment.~~

D. Submittals: Submittals shall be provided by the Contractor to the Contracting Officer Representative for approval in accordance with the procedures provided at the beginning of this document.

1. Designer Qualifications: All hydraulic calculations and drawings showing the layout of the sprinkler system shall be done by a registered Fire Protection Engineer, a registered professional engineer with a fire protection background, or a NICET Level 4 technician who has had at least four (4) years of current experience in the design of fire protection systems. Written proof of registration and experience shall be submitted to the Contracting Officer Representative for approval.

2. Calculations, Drawings, and Specifications: Installation of fire protection equipment shall not begin until such time that the calculations, drawings, and specifications have been reviewed and approved by the government.

3. Operation & Maintenance (O&M) Manuals: Six (6) complete copies of the O&M manuals in bound 8.5 inch by 11 inch shall include a brief description of all equipment and their basic operating features, piping and equipment layouts, the manufacturer's name, model number, service manual, parts list and simplified wiring and control diagrams of the systems as installed. In addition, the booklets shall list step-by-step procedures required for system startup, operation, shutdown, routine maintenance procedures, possible breakdowns and repairs, and a trouble-shooting guide.

2.6.3.2 Occupancy Ratings: The occupancy ratings shall be as follows:

A. Density:

Area:	Occupancy:	gpm/sf	***Design Area***	***Hose Stream***
Dorm Sleeping Areas	NFPA 13R	NFPA 13R	***NFPA 13R***	***250 gpm***
Assembly Rooms	Lt. Haz.	0.10	***3,000 sq. ft.***	***250 gpm***
Offices	Lt. Haz.	0.10	***3,000 sq. ft.***	***250 gpm***
Public Corridors	Lt. Haz.	0.10	***3,000 sq. ft***	***250 gpm***
Public Laundry Rooms	Ord. Haz. Group 1	0.15	***3,000 sq. ft.***	***500 gpm***
~~Electrical Rooms~~	~~Ord. Haz. Group 1~~	~~0.15~~		
Electrical Rooms	***Ord. Haz. Group 2***	***0.20***	***3,000 sq. ft.***	***500 gpm***
~~Communication Rooms~~	~~Ord. Haz. Group 1~~	~~0.15~~		
Communication Rooms	***Ord. Haz. Group 2***	***0.20***	***3,000 sq. ft.***	***500 gpm***
Mechanical Rooms	Ord. Haz. Group 2	0.20	***3,000 sq. ft.***	***500 gpm***
Janitor Rooms	Ord. Haz. Group 2	0.20	***3,000 sq. ft.***	***500 gpm***

2.6.3.3 Hydraulic Calculations: Hydraulic calculations shall be based on the following:

Barracks 841: Hydrant number 4, 125 psi static pressure and a residual pressure of 99 psi at a flow rate of 1230 gpm, 24 July 2003.

Barracks 645 and 646: Hydrant number 30, 108 psi static pressure and a residual pressure of 104 psi at a flow rate of 1055 gpm, 24 July 2003.

The contractor shall perform a fire flow test to confirm the above values. The test shall be done prior to preparation of shop drawings or hydraulic calculations. In all cases, sprinkler and hose stream demands shall be assumed to take place simultaneously. Calculations shall be based on the hydraulically most remote 3,000 sq.ft with a hose stream at the ~~most hydraulically remote~~ ~~standpipe hose connection of 250 gpm.~~ ***the nearest hydrant and the requirements set forth in NFPA 13R with a hose stream of 250 gpm at the nearest hydrant. All new piping for new standpipes shall be a minimum of 4 inches in diameter.*** Residual pressure requirements specified for wet standpipe systems in NFPA 14 may be omitted for buildings under 150 feet in height where fire department apparatus are expected to boost the water pressure; however, for the calculations, the hose and sprinkler flow requirements and the minimum sprinkler head pressure requirements shall be met without a fire department pressure booster apparatus.

2.6.3.4 Fire Risers, Standpipe Risers, Fire Department Connections, and Backflow Preventers: The new riser assembly shall be installed above grade adjacent to the existing standpipe located in the Breezeway. The new riser shall be connected to the base of the existing 4 inch standpipe. The new riser shall be a minimum size of 4 inches. As a minimum, the riser shall comprise of a pressure gauge, main drain and test valve, signs on body, and an O.S.Y gate valve with supervised tamper switch, and paddle-type water flow alarm switch. A paddle-type water flow alarm switch shall be provided either for each standpipe riser or system of risers. All water flow alarm switches shall be connected to a local-alarm circuit, transmitted-alarm circuit, and power-supply circuit.

2.6.3.5 Local Fire Alarm: Building exterior fire alarm indication shall be by an electrically operated bell located on an outside wall adjacent to the sprinkler riser. The transmitted alarm signal to the main fire station shall be under the electrical portion of this contract.

2.6.3.6 Sprinkler Heads: Sprinkler heads in T-bar ceilings, unless indicated otherwise, shall be centered on the ceiling tiles in one direction. The sprinkler temperature ratings shall be suitable for the hazard being protected.

A. Areas With Finished Ceilings: Sprinkler heads in areas with finished ceilings shall be the fully recessed type. Sprinklers shall be quick response type.

B. Areas Without Finished Ceilings: Areas without suspended or gypsum board ceilings such as mechanical, electrical, and communication rooms shall be protected by exposed pendant or upright type sprinkler heads. Sprinklers shall be the quick response type.

B.1. Note: All Bedrooms (including the restroom and kitchen areas), Corridors, Lounges, Recreation/Administration, Mail Rooms, and Laundry Rooms shall have no exposed piping and all sprinkler heads shall be fully recessed type. If necessary due to obstructions, utilize multiple fully recessed heads and/or recessed horizontal sidewall heads only as a last resort.

C. Covers And Escutcheons: All exposed and semi-recessed type sprinkler heads shall be polished chrome with white escutcheon rings.

2.6.3.7 Sprinkler Piping: All sprinkler/standpipe piping passing through breezeway areas at center of each building at each floor shall be hidden from view. Such piping shall be concealed in a low-profile architectural chase that harmonizes with the adjacent building furnishings. Chases shall be located so as not to infringe on the path of egress. Ceiling-mounted chases shall be of a depth that is kept to a minimum to avoid protruding down excessively from the ceilings.

2.6.3.8 Expansion Joints: See as-built drawings for building expansion joint locations.

2.7 Electrical Design

All requirements herein are typical for three existing barracks buildings that are being renovated, unless noted otherwise.

2.7.1 Engineering, Installation, and Testing Standards

2.7.1.1 Engineering, Installation and Testing Standards

Engineering design, installation and testing of electrical and other systems listed herein for this facility shall comply with the applicable requirements of the latest editions of the following and other applicable standards listed in Section 01010 of this RFP: UFC 3-520-01, MIL-HDBK-1190, MIL-HDBK-1008C, NFPA 70 (National Electrical Code-2002), NFPA 70E(2000), NFPA 72 (1999), NFPA 101(2000), California General Order 95 (1998), California General Order 128, TM 5-811-1, TM 5-811-14, Illuminating Engineering Society Application and Reference Handbooks, Institute of Electrical and Electronic Engineers, Insulated Power Cable Engineers Association, National Electrical Manufacturer's Association, Underwriters' Laboratories Inc., American National Standards Institute, the American Society for Testing and Materials, and Telecommunications Industry Association/Electronic Industries Association TIA/EIA 568-A, the latest revision of TIA SP-4195 or, on publication, Addendum No. 5 of ANSI/TIA/EIA-568-A, TIA/EIA 569-A, TIA/EIA 607, EIA TSB 67, Insulated Cable Engineers Association ICEA S-80-576, and ICEA S-83-596.

2.7.1.2 UL Label

The label or listing of the Underwriters Laboratories, Inc., will be accepted as evidence that the materials or equipment conform to the applicable standards of that agency. In lieu of this label or listing, a statement from a nationally recognized, adequately equipped testing agency indicating that the items have been tested in accordance with required procedures and that the materials and equipment comply with all contract requirements will be accepted.

2.7.1.3 PCB Standards

All new electrical equipment shall be supplied with no PCB's. New fluorescent lighting fixture ballasts shall be clearly marked "No PCB's".

2.7.1.4 Design Specification

Materials and finishes shall meet criteria listed in Division 01010-General Project Description and General Design Requirements, Section 5 Technical Criteria unless otherwise noted. Materials and equipment shall be standard catalog products of manufacturers regularly engaged in production of such materials. All selected equipment shall be manufacturer's latest standard model. Exterior equipment shall be factory primed and field painted. Interior equipment shall be factory finished.

2.7.1.5 Metering

Provide metering for secondary power at the main transformers with built-in switchboard units as directed in para. 2.7.3.1 below. Unless otherwise directed by PG&E, all metering shall be provided to be

Pacific Gas & Electric "Meter Ready", in compliance with PG&E Company Green Book "Electric and Gas Service Requirements, 2001 Edition".

2.7.1.6 Utility Coordination

It is anticipated that all utility services on the Presidio of Monterey will be privatized by late calendar 2003. Contractor shall coordinate the electrical service with PG&E and provide submittal drawings to PG&E for review of design. Coordinate with Mr. Gary Nevoli at phone 408-463-7614 or cell 408-205-8644 Project Manager, San Jose PG&E office.

PG&E shall be notified of installation of underground electrical utility lines, and shall be given the opportunity to inspect installation before utility trenches are backfilled. Failure to do so could result in the contractor having to re-excavate for inspection and/or pay fines. Contractor shall pay all charges including review, inspection, permits and connection due PG&E.

2.7.1.7 Existing As-Built Drawings

The contractor shall well coordinate all work with the existing as-built drawings for buildings 645, 646 and 841, which are readily available as specified elsewhere in this RFP.

2.7.1.8 Disposal of Demolition Materials

All demolition materials shall be disposed off of government property by the Contractor, unless otherwise noted. The Contractor shall dispose of all hazardous materials, such as transformer oil (potential PCB's), light fixture lamps (mercury) and light fixture ballasts (potential lead) in accordance with all applicable State of California regulations.

2.7.2 Site Considerations

2.7.2.1 Exterior Duct Lines (Required for Option #14 only)

Concrete encasement shall be 3 inch minimum on all sides, with 3-inch spacing between adjacent duct walls in the same run. Between adjacent power and communications ducts in the same run, provide 4 inch spacing between adjacent duct walls. Unless otherwise noted, secondary electrical duct lines shall be thin-wall concrete encased ducts under paved areas and heavy-wall ducts (Type DB-direct burial) under other than paved areas. Secondary service ducts shall be 4-inch diameter. Minimum burial depth of direct buried ducts shall be 30 inches to top of ducts. Minimum burial depth of concrete encased duct banks shall be 24 inches to top of encasement. Total distance of curved duct lines between manholes/pullboxes shall be kept to 300 feet; the curve shall not have a radius of less than 25 feet. Repair all surfaces equivalent to existing conditions prior to boring.

2.7.2.1.2 Saw Cut & Patching of Streets/Roads/Parking Areas/Sidewalks

Saw cut and patch existing paved roadways or parking areas to install new underground ductbanks. Patch shall repair existing asphalt pavements and/or concrete sidewalks to restore them to existing conditions. Work on ½ of road at one time providing steel traffic plate covers over work at night.

2.7.2.1.3 Phasing of Site Demolition Work with New Work

Site Demolition work described herein shall be phased with new work described herein to keep power outages to an absolute minimum.

2.7.2.2 Site Electrical and Communications Demolition/Modification

See RFP section 2.3.20 for site plan drawings.

2.7.2.2.1 Existing Site Electrical

Remove existing pad-mount transformers with built-in switchboard and meter (2 total), one each such grouping at building 841 and at buildings 645/646. Transformer oil and related contaminated contents shall be disposed of in accordance with State of California regulations for disposal of products containing PCB's. Remove existing secondary conductors feeding building 841 panel 1C (via manhole). Coordinate any power outages a minimum of 10 days in advance with Contracting Officer.

2.7.2.3.2 New Site Electrical

The new site electrical shall be provided in accordance with all the latest requirements and standards of PG&E, the local utility provider, and California General Order (GO) 95 (1998) and California (GO) 128 (1998).

Connection to the new pad-mounted transformers (with integral switchboards and meters) shall be in compliance with all of the local utility provider, Pacific Gas & Electric, requirements and standards. From the switchboards (integral to transformers) extend the service entrance cabling in existing (and new for option 14) underground ducts and terminate at the main distribution switchboard located in the building Electrical room. Coordinate any power outages a minimum of 10 days in advance with Contracting Officer. ***PG&E approved drawings and specifications shall be submitted to the government as part of the design submittal.***

2.7.2.3.3 New Communications Outside Plant Service

The existing duct and manhole systems and their associated cabling will be reused.

2.7.2.4 Manholes

2.7.2.4.1 General

Repair the walls of the existing manholes to existing conditions when impacted by new work. Before entering any existing electric manholes, first coordinate with the Contracting Officer and with the Exterior Electric section of the Department of Public Works.

2.7.2.4.2 Cable Markings – Option #14

A color-coded plastic warning tape at least 4" wide shall be placed within the trench, 12" above all buried utility lines as follows:

RED: electric

In addition, concrete for primary power ducts shall be color dyed red.

2.7.2.4.3 Pad-Mounted Transformer

Provide oil-filled, deadfront, tamper-resistant pad-mounted compartmental transformers sized 300 KVA feeding building 841 (and 840) and sized 300 KVA feeding buildings 645 and 646. Transformer shall be radial feed with pressure relief, oil gauge, LBOR switch, primary fuses, primary surge arresters, and two 2-1/2 % taps above and below normal. Transformer must be certified as PCB free by a certified testing laboratory and a copy of certification given to the government for record keeping. Install on reinforced concrete pad sized to fit transformer. Fuses in transformer primary and the main circuit breaker in the building main distribution panel shall be coordinated with other protection devices down stream of them inside the building. The transformer primary voltage shall be Delta Primary-208/120 volt WYE 3 phase, 4 wire secondary. Match the transformer primary voltage to the existing equipment. Each of the two new transformers shall include an integral distribution switchboard with main circuit breaker, meter, and two feeder circuit breakers (feeding secondary circuits to buildings), all sized appropriately to feed each of the barracks buildings served. Each feeder circuit breaker shall provide service disconnecting means and overcurrent protection for the building served in accordance with NFPA 70 Article 230. In addition, the feeder circuit breaker feeding building 841 shall be a fully-rated circuit breaker under the base bid.

2.7.2.4.4 Pad-Mounted Transformer Location

Ensure transformer installation, grounding, conduit openings into the transformer compartment, and clearances are in compliance with California General Order 95, California General Order 128 and with the local utility provider, PG&E's latest requirements and standards. Provide seismic bracing of transformer per transformer manufacturer's specifications. Modify existing raised housekeeping concrete pads under transformers as necessary to accommodate larger equipment.

2.7.2.4.4 Power System Analysis

A full Primary Coordinated Power System Analysis is not required for this project.

2.7.2.5 Available Fault Current

To obtain data on the available fault current at this facility, contact Tai Cao at the Presidio of Monterrey Department of Public Works: Ph# 831-242-6837.

2.7.3 Building Electrical

2.7.3.1 Secondary Service

2.7.3.1.1 Buildings 645 and 646

The existing secondary ducts feeding these buildings are two 4″ ducts to each building, one of which is a spare in each case. Upgrade the 3-phase, 4-wire secondary conductors to carry a total of 600 amps feeding each new building service entrance panel "_C". Ensure service equipment is properly configured to accept multiple conductors for each phase at the bus. Provide a new UL listed service entrance switchboard with a 600-ampere bus rating at each building. The service entrance equipment shall be seismically braced per the Uniform Building Code (UBC) 1997 edition. The new service entrance panel at each building shall replace the existing panel "_C" in the same location and shall thus be 20" wide maximum, 7" deep maximum to fit the existing space and to mate up with the existing secondary service conduits below.

2.7.3.1.1.1 Building 646 Electrical Room Modifications

The existing conduits/circuits below and between existing panels 5B and 5C shall be rerouted to make room for the new larger (taller) panel 5C. Provide wireway or pullbox below existing panel 5B as required to facilitate rerouting of conduits.

2.7.3.1.2 Building 841 – Base Bid

The existing secondary duct feeding this building is one 4″ duct (no spare). [This limitation mandates a different treatment of building 841 versus the other two buildings, which in turn created Option #14.] Remove the existing secondary conductors (350 MCM, rated less than 400 amps) and replace them with a 4-conductor 500 kcmil XHHW-2 90-degree wet rated cable rated above 400 amps, such as Okonite model #571-31-3316 (C-L-X Type MC-HL) or equal. The new secondary conductors shall feed the existing panel "1C". Reuse panel 1C if it is rated for operation with 90-degree rated conductors, otherwise replace it with a UL-listed 400-ampere bus and 90-degree rated panel. The service entrance equipment shall be seismically braced per the Uniform Building Code (UBC) 1997 edition.

2.7.3.1.3 Building 841 – Option #14

Provide trenching, backfill, compaction, saw-cut and repair of existing concrete and parking lot to provide one new 4″ duct from the replaced transformer to the building 841 electrical service entrance panel "1C". There will now be two 4″ conduits available for secondary power service to building 841. Upgrade the 3-phase, 4-wire secondary conductors to carry a total of 600 amps feeding building 841 service entrance panel "1C". Ensure service equipment is properly configured to accept multiple conductors for each phase at the bus. Provide a new UL listed service entrance switchboard with a 600-ampere bus rating. The service entrance equipment shall be seismically braced per the Uniform Building Code (UBC) 1997 edition. The new service entrance panel shall replace the existing panel "1C" in the same location and shall thus be 20" wide maximum, 7" deep maximum to fit the existing space and to mate up with the existing and new secondary service conduits below. Option #14 work replaces the base bid new conductors and new switchboard work specified in the preceding paragraph.

2.7.3.3 Secondary Distribution

Reuse existing panels "_A" and "_B" in each of the three buildings. Some of the circuit breakers in these reused panels will have to be replaced with arc-fault interrupter type circuit breakers as specified herein. All new electrical panels shall be 120/208 volt, 3-phase, 4 wire. All new 208/120 volt panelboards shall be located in existing electrical room and the existing janitor's closets. The existing janitor's closets are adjacent to and above the existing electrical room. There is one janitor's closet per floor. Electrical panels shall be surface mounted. All new circuit breakers shall be capable of being locked in the OFF position. Loadcenters are not allowed. All new sub-panelboards (a sub-panelboard is a panel that is not a main service entrance panel) shall have a main breaker. All busses shall be made of copper. In both new and existing panels, all branch circuit breakers that supply 125 volt, single phase outlets (including lighting circuits) installed in dwelling units bedroom shall be provided with arc-fault interrupter listing to provide protection to the entire branch circuits in addition to overcurrent and short circuit protection. Provide 15% spare capacity and 15% spare circuit breaker spaces in all new sub-panelboards.

2.7.3.4 Secondary Electrical Wiring and Conduit

The contractor may reuse the existing building wiring and conduit where possible and at his option, including to the extent that it may override the requirements of this paragraph, provided the final installation is fully functional and complies with the current edition of NFPA 70. New wiring shall consist of 600-volt insulated single conductors type THWN, THHN, or THW conforming to UL 83, installed in raceways consisting of electrical metallic tubing, intermediate metal conduit (IMC), or rigid galvanized steel conduit (RGS). Non-metallic sheathed cables and Electrical Non-Metallic Tubing (ENT) shall not be provided. Conductors shall be copper, only. Branch-circuit conductors shall not be smaller than No. 12 AWG. Number of current-carrying conductors per conduit shall be kept to 6 maximum to limit the adjustment factor reduction of each conductor to 80 percent, per 310.15(b)(2). Provide each single 20 amp branch circuit for convenience receptacles with a dedicated neutral conductor. Conductors for branch circuits of 120 volts more than 100 feet long from panel to connected load, shall be no smaller than No. 10 AWG. Class 1 remote control and signal circuit conductors shall be not less than No. 14 AWG. Class 2 remote control and signal circuit conductors shall be not less than No. 16 AWG. Class 3 low-energy, circuit conductors shall be not less than No. 22 AWG. Insulation type shall be TW, THW or TF conforming to UL 83 and suitable for the application according to the National Electrical Code (NEC). Unless otherwise noted, insulation type shall be suitable for the application according to the NEC. Where lighting fixtures require 90-degree Centigrade conductors, provide only conductors with 90-degree C insulation or better. Routing of raceways and cables shall be parallel or perpendicular to walls and ceilings and shall not be run diagonally across rooms. Fire stop any cable or raceway penetrations through fire walls to meet fire resistance ratings required in ASTM E 814 or UL 1479. Except as otherwise specified, IMC may be used as an option for rigid steel conduit in areas as permitted by NFPA 70. Raceways shall not be installed under the firepits of boilers, steam pipes, and hot-water pipes. All new raceways shall be concealed within finished walls, suspended ceilings, and floors (except in electrical, communications, mechanical, janitorial and laundry rooms). Aboveground raceways crossing structural expansion joints or seismic joints, or below grade raceways crossing wall foundations, shall be provided with suitable expansion fittings on both sides, or other suitable means to compensate for the building expansion and contraction. Other expansion fittings shall be provided for raceways as further required in NFPA 70.

Feeder and branch circuits, communications, fire alarm and security conduits shall be run above furred ceilings.

New conduits passing through breezeway areas at center of each building at each floor shall be hidden from view. Such conduits shall be concealed in a low-profile architectural chase that harmonizes with the adjacent building furnishings. Chases shall be located so as not to infringe on the path of egress. Ceiling-mounted chases shall be of a depth that is kept to a minimum to avoid protruding down excessively from the ceilings. ~~Alternatively for buildings 645 and 646 only, conduits may be surface mounted on the back side of the building so they are not viewable from either the front side of the building, from the stairs, or from the covered breezeway areas. The front side of buildings 645 and 646 is defined for this paragraph only as the side facing the adjacent main parking lot.~~

Existing exposed conduits on the building exterior shall be rerouted

inside the building's new interior furred-out walls, interior ceiling spaces and/or new exterior architectural chases to conceal them. New chases shall be the same or similar to those described in the preceding paragraph. These conduits include but are not necessarily limited to those for receptacles, security cameras and pay telephones. Exception: rerouted conduits may be run exposed inside electrical, mechanical, janitorial and laundry rooms.

Provide expansion fittings in all new conduits where they cross building seismic joints/separations, such as in the breezeways.

All existing interior surface-mounted raceways shall be concealed by the contractor (replace as necessary) in conjunction with renovation work (except in electrical, mechanical, janitorial and laundry rooms). Existing surface-mounted raceways in barracks bedrooms shall be removed and replaced with new conduit, new type as specified herein.

2.7.3.4.1 Conduit Stub-Ups

Where conduits are to be stubbed up through concrete floors, a short sweep shall be installed below grade to transition from the horizontal run of conduit to a vertical run. A conduit coupling fitting, threaded on the inside shall be installed, to allow terminating the conduit flush with the finished floor. Wiring shall be extended in rigid threaded conduit, (IMC) or (RGS) only, to equipment, except that where required, flexible conduit may be used 6 inches above the floor. Empty or spare conduit stub-ups shall be plugged flush with the finished floor with a threaded, recessed plug.

2.7.3.4.2 Below Slab-On-Grade or in the Ground

Electrical wiring below slab-on-grade shall be protected by a conduit system. Conduit passing vertically through slabs-on-grade shall be RGS or IMC. Rigid galvanized steel or IMC conduits installed below slab-on-grade or in the earth shall be field wrapped with 0.254 mm thick pipe-wrapping plastic tape applied with a 50 percent overlay, or shall have a factory-applied polyvinyl chloride, plastic resin, or epoxy coating system.

2.7.3.4.3 Installing Conduit in Slabs Including Slabs on Grade

Conduit installed in slabs-on-grade shall be RGS or IMC. Conduits shall be installed as close to the middle of concrete slabs as practicable without disturbing the reinforcement. Outside diameter shall not exceed 1/3 of the slab thickness and conduits shall be spaced not closer than 3 diameters on centers except at cabinet locations where the slab thickness shall be increased as approved by the Contracting Officer. Where conduit is run parallel to reinforcing steel, the conduit shall be spaced a minimum of one conduit diameter away but not less than 25.4 mm from the reinforcing steel.

2.7.3.4.4 Conduit Supports

Except where otherwise permitted by NFPA 70, conduits and electrical metallic tubing (EMT) shall be securely and rigidly fastened in place at intervals of not more than 3 meters and within 90 mm [36-inches] of boxes, cabinets, and fittings, with approved pipe straps, wall brackets, conduit clamps, conduit hangers, threaded C-clamps, beam clamps or ceiling trapeze. Loads and supports shall be coordinated

with supporting structure to prevent damage or deformation to the structure. Loads shall not be applied to joist bridging. Attachment shall be by wood screw-type nails to wood; by toggle bolts on hollow masonry units; by expansion bolts on concrete or brick; by machine screws, welded threaded studs, heat-treated or spring-steel-tension clamps on steel work. Nail-type nylon anchors or threaded studs driven in by a powder charge and provided with lock washers and nuts may be used in lieu of expansion bolts or machine screws. Raceways or pipe straps shall not be welded to steel structures. Cutting the main reinforcing bars in reinforced concrete beams or joists shall be avoided when drilling holes for support anchors. Holes drilled for support anchors, but not used, shall be filled. In partitions of light steel construction, sheet-metal screws may be used. Raceways shall not be supported using wire or nylon ties. Raceways shall be independently supported from the structure. Upper raceways shall not be used as a means of support for lower raceways. Supporting means will not be shared between electrical raceways and ceiling grids. Except where permitted by NFPA 70, wiring shall not be supported by ceiling support systems. Conduits shall be fastened to sheet-metal boxes and cabinets with two locknuts where required by NFPA 70, where insulating bushings are used, and where bushings cannot be brought into firm contact with the box; otherwise, a single locknut and bushing may be used. Threadless fittings for electrical metallic tubing shall be of a type approved for the conditions encountered. Additional support for horizontal runs is not required when EMT rests on steel stud cutouts.

2.7.3.4.5 Wiring Temperature Rating

Where wiring is connected to devices rated at 100 amperes or less, the ampacity limit listed for 60 degrees C wire in allowable ampacity table 310.16 in the NEC shall be used whether or not the wire is rated at a higher temperature. For wiring connected to devices rated at over 100 amperes, wiring rated at 75 degrees C or greater shall be used. The 75 degree ampacity limit for wire shall be used whether or not the wire is rated at a higher temperature. The ambient temperature derated ampacity of higher temperature insulated wire may be used as long as the calculated derated ampacity is not less than the ampacity limits of the 60 degrees C wire (for 100 amps or less branch circuits) or less than the ampacity limits of the 75 degrees C (for greater than 100 amps circuits). These requirements are to ensure that higher temperature wire does not thermally overheat the equipment wire/cable terminals that are rated at the lower temperature of 60 degrees C or 75 degrees C.

2.7.3.4.6 Cable Tray

NEMA VE 1 cable trays shall form a wireway system, and shall be of nominal 3 inch depth and ***6,*** 12 or 18 inches wide, unless larger dimensions are required to maintain a maximum 50 percent cross sectional area cable fill. All cable tray outside of the telecommunications closets shall be trough type and installed above the acoustical ceiling, and inside the telecommunications closet shall be ladder type and installed at 6 inches above equipment cabinets, and wall plywood backboards. Contractor may provide, instead, cable tray equivalent to Flextray or EZ Tray inside and outside of telecommunications closets. Cable trays shall be constructed of aluminum, copper-free aluminum or zinc-coated steel. Trays (including Flextray and EZ Tray) shall include dimension and direction-transition fittings, splice and end plates, cable dropout chute fittings, conduit-end tray fasteners and miscellaneous hardware all provided by the cable

tray manufacturer. Edges, fittings, and hardware shall be finished free from burrs and sharp edges. Conduits terminated at cable trays shall be provided with insulated throat bushings. Cable tray transitions fittings shall have not less than the load-carrying ability of straight tray sections and shall have the manufacturer's minimum standard radius. Radius of bends shall be 12 inches. Routing of cable trays shall be parallel or perpendicular to walls and ceilings and shall not be run diagonally across rooms. Cable trays shall penetrate fire rated walls and partitions in accordance with Article 300 of NFPA 70. Fire stop any cable tray penetrations through fire walls to meet fire resistance ratings required in ASTM E 814 or UL 1479. ***Bonding jumper shall be provided for conduits routed to cable tray.*** Use of cable tray is optional ***in breezeways and on first floor*** and shall be for the routing of new communications cables only.

2.7.3.4.7 *New* Motors

Coordinate with the mechanical, plumbing and fire protection requirements of this RFP regarding where new motors are required and where existing motors are to be reused. Motors above 373w. [1/2 horsepower] shall be three phase. 373w. [1/2 horsepower] and smaller motors may be rated at 115 volts single phase. Provide protection against single phasing when a phase loss occurs for all three phase motors. Provide high efficiency motors for those motors operating over 750 hours per year. Follow the guidelines in NEMA Standard MG-1. Motors larger than 10 HP shall be furnished with power factor correction. Unless otherwise specified, all motors shall have open frames, and continuous-duty classification based on a 40 degree C ambient temperature reference. Polyphase motors shall be squirrel-cage type, having normal-starting-torque and low-starting-current characteristics, unless other characteristics are specified in other sections of these specifications. The Contractor shall be responsible for selecting the actual horsepower ratings and other motor requirements necessary for the applications indicated. When electrically driven equipment furnished under other sections of these specifications materially differs from the design, the Contractor shall make the necessary adjustments to the wiring, disconnect devices and branch-circuit protection to accommodate the equipment actually installed.

2.7.3.4.7.1 Motor Control

Each motor or group of motors requiring a single control and not controlled from a motor-control center shall be provided under other sections of these specifications with a suitable controller and devices that will perform the functions as specified for the respective motors. Each motor of 1/8 hp or larger shall be provided with thermal-overload protection. Polyphase motors shall have overload protection in each ungrounded conductor. The overload-protection device shall be provided either integral with the motor or controller, or shall be mounted in a separate enclosure. Unless otherwise specified, the protective device shall be of the manually reset type. Single or double pole tumbler switches specifically designed for alternating-current operation only may be used as manual controllers for single-phase motors having a current rating not in excess of 80 percent of the switch rating. Automatic control devices such as thermostats, float or pressure switches may control the starting and stopping of motors directly, provided the devices used are designed for that purpose and have an adequate horsepower rating. When the automatic-control device does not

have such a rating, a magnetic starter shall be used, with the automatic-control device actuating the pilot-control circuit. When combination manual and automatic control is specified and the automatic-control device operates the motor directly, a double-throw, three-position tumbler or rotary switch shall be provided for the manual control; when the automatic-control device actuates the pilot control circuit of the magnetic starter, the latter shall be provided with a three-position selector switch marked MANUAL-OFF-AUTOMATIC. Connections to the selector switch shall be such that only the normal automatic regulatory control devices will be bypassed when the switch is in the Manual position; all safety control devices, such as low- or high-pressure cutouts, high-temperature cutouts, and motor-overload protective devices, shall be connected in the motor-control circuit in both the Manual and the Automatic positions of the selector switch. Control circuit connections to any MANUAL-OFF-AUTOMATIC switch or to more than one automatic regulatory control device shall be made in accordance with wiring diagram approved by the Contracting Officer unless such diagram is included on the drawings. All controls shall be 120 volts or less unless otherwise indicated. Provide seismic bracing of motor control center as required section 2.9.4 "Mechanical and Electrical Seismic Protection".

Each motor shall be provided with a disconnecting means when required by NFPA 70 even though not indicated. For single-phase motors, a single or double pole toggle switch, rated only for alternating current, will be acceptable for capacities less than 30 amperes, provided the ampere rating of the switch is at least 125 percent of the motor rating. Switches shall disconnect all ungrounded conductors.

2.7.3.5 *New* Convenience Receptacles

All existing convenience receptacles shall be replaced with new receptacles. Where existing receptacles are being covered by new walls, remove them but maintain the branch circuit to feed other existing devices. Existing replaced receptacles may take the place of some of the new receptacle requirements specified herein, such that the new requirements are fulfilled by a combination of new and existing receptacles. Unless otherwise noted, all convenience receptacles shall be heavy duty NEMA 5-20R, 125 volt, duplex grounding type, and shall be flush-mounted at 18 inches above finished floor (AFF). In lounges provide convenience receptacles at 10 feet on centers along perimeter walls and at 5 feet maximum from doors. Provide receptacles a maximum of 30 feet on center in perimeter walls in corridors and circulation areas for use of janitorial or other equipment. Where countertops are provided in rooms, provide receptacles above the countertop back splash. Provide at least one receptacle in bathrooms. Provide new convenience receptacles in barracks rooms as necessary to account for architectural wall modifications in this contract, matching as a minimum the existing convenience receptacle spacing in those areas, and for strict compliance with NFPA 70. Provide ground-fault circuit-interrupter (GFCI) receptacles where receptacles are located within 6 feet of sinks such as in the bathroom. Provide one quadruplex (double duplex) receptacle at the 2nd floor telephone backboard on a dedicated 20-ampere branch circuit. Device face plates shall be nylon impact resistant type and ivory colored. Provide a NEMA 5-20R, 125 volt duplex grounding type, receptacle on a dedicated circuit for microwaves in the lounges.

2.7.3.6 Equipment Power

Provide hardwired equipment-terminated power circuits, or receptacles

adjacent to equipment, on dedicated circuits, as required by applicable sections of NFPA 70 and/or the equipment manufacturer, to serve new equipment listed herein and in other narrative paragraphs that form a part of the Electrical section. This includes small 115-200 volt rated mechanical equipment such as cabinet heaters and exhaust fans. This also includes power to a new mechanical indication panel in the Mechanical Room which has status ON-OFF visual indicators for boiler, barracks rooms exhaust fans, dryer room fan and domestic water boiler (coordinate with Mechanical requirements of this RFP).

2.7.3.7 Miscellaneous Power Requirements

Replace existing receptacles with new matching receptacles at each existing electric water cooler, washer, dryer and vending machine location.

2.7.3.8 Kitchenette Equipment

2.7.3.8.1 Buildings 645 and 646

Provide branch circuits to serve a 2-burner electric cook-top, built-in microwave and exhaust hood, garbage disposal, under-counter refrigerator and small-appliance receptacle above countertop in each Kitchenette room/area. Coordinate exact equipment sizes and locations with mechanical requirements, cabinetry and Architectural requirements.

2.7.3.8.2 Building 841 Base Bid

Provide branch circuits to serve a built-in microwave, garbage disposal, under-counter refrigerator and small-appliance receptacle above countertop in each Kitchenette room/area. Coordinate exact equipment sizes and locations with mechanical requirements, cabinetry and Architectural requirements. Provide conduit-only to each future cook-top location, for future branch circuit wiring installed from panel-board.

Provide conduit only to the first floor lounge (adjoining Mechanical Room) for future branch circuit wiring from panel-board to feed future kitchen equipment. Conduit only to the lounge shall be provided to accommodate future built-in electric oven/range with cook-top, built-in microwave with exhaust hood, dishwasher, full-size refrigerator, garbage disposal and small appliance outlets above countertop, all sized as required by the NEC. Conduits shall all be capped above dropped ceiling along one or two adjacent walls 12 feet minimum in length, and shall be labeled for their purpose.

2.7.3.8.3 Building 841 – Option #14

The requirements herein replace those in the preceding numbered paragraph (both parts). Provide branch circuits to serve a 2-burner electric cook-top, built-in microwave and exhaust hood, garbage disposal, under-counter refrigerator and small-appliance receptacle above countertop in each Kitchenette room/area. Coordinate exact equipment sizes and locations with mechanical requirements, cabinetry and Architectural requirements.

~~***2.7.3.8.4 First Floor Lounge Kitchen (Conduit for Future)***~~

2.7.3.9 Grounding

Ground the electrical system, and all electrical equipment and metallic raceway bushings used by electrical conductors to comply with Article 250 of the NFPA 70. Provide an insulated green equipment ground conductor in all raceways regardless of the type of conduit. In raceways supplying grounding receptacles, connect the equipment grounding conductor to the outlet box. The earth electrode system shall be extended to new panelboards, receptacles, etc. Telecommunication room shall be grounded with a dedicated conduit and conductor bonded to the service entrance power grounding electrode system, in compliance with TIA/EIA 607. All bare copper cable exposed to the soil shall be type tinned copper, and all ground rods shall be solid copper. The contractor shall ensure that all existing electrical systems are grounded in accordance with NFPA 70, and shall repair all existing deficiencies such that the facility grounding systems are brought up to current NFPA 70 requirements. ***Provide a #6 ground wire at the telephone terminal backboards and connect it to the building's metallic ground. Leave sufficient coil to reach any part of the telephone backboard/closet.***

2.7.3.10 Voltage Drop

Size wiring for feeders to have a voltage drop of 2% or less. Size wiring for branch circuits to have a voltage drop of 3% at the furthest outlet of power, heating, and lighting loads. Size overall wiring so that the maximum combined voltage drop on both feeders and branch circuits to the furthest outlet of power, heating, and lighting loads is 5% or less.

2.7.3.11 Laundry Room Fan Controls

Each laundry room shall have a new fan that turns on when any of the dryers are running. Provide required current sensing devices on dryer branch circuits, interlocked with fan controls, to achieve this result. Coordinate with the Mechanical requirements of this RFP.

2.7.4 Exterior Lighting

~~The existing exterior building lighting (including stairwells) and site lighting shall be reused without modification, typical at all 3 buildings. The City of Monterey currently is upgrading the building exterior wall-mounted light fixtures – the contractor shall be aware of this and shall well coordinate his work with the City of Monterey through the Contracting Officer to avoid conflict. The point-of-contact with the City of Monterey is their electrician Jerod at 831-760-2221 (cell).~~***Exterior lighting shall be upgraded via a 2-step process:***

1) The barracks buildings have existing exterior wall-mounted fluorescent and high intensity discharge (HID) light fixtures. Replace all existing exterior fluorescent building wall-mounted light fixtures with new fixtures in the same locations. The existing fixtures shall be turned over to the government. Contact Dewey Baird at 831-242-6315 after the existing fixtures are removed to coordinate turn over. Reuse the existing wall-mounted HID light fixtures on the building exterior. New exterior building wall-mounted lighting (to replace fluorescent) shall consist of wall mounted high pressure sodium light fixtures, rated for damp locations. Fixture shall consist of an impact-resistant lens, built-in reflector and one 35-watt high pressure sodium lamp. In addition, provide quartz re-strike in light fixtures fed off the

existing Holophane Emergency Lighting Panel (coordinate with as-built drawings and existing site conditions to determine which fixtures are the emergency type). Provide new relays in the existing Holophane panel to accommodate the emergency lighting requirement for the new HID/Quartz light fixtures being served. New HID fixtures shall be similar in appearance to existing HID fixtures.

2) Provide additional wall-mounted HID light fixtures with the specifications outlined in paragraph "1)" above, and/or provide new site lighting fixtures (poles, bollards, etc.) to match existing, to provide additional required exterior lighting to comply with the following Force Protection Exterior Lighting requirements:

a. Exterior Building Lighting: Active entrance lighting for pedestrians should have two or more lights, with adequate illumination for recognition of persons.

b. Perimeter Lighting: Building face perimeter lighting illuminates the face of the building or within 30 feet of the building. Lighting should turn on and off at sundown and sunrise.

General for all exterior lighting: All fixtures shall be connected to dedicated branch circuit(s) in panelboards. All fixtures shall be controlled by photocell and time clock through a lighting contactor. The existing site parking lot and walkway lighting shall be reused.

2.7.5 Interior Lighting

Interior Lighting shall comply with the "Presidio of Monterey Warranty & Material Submittal For Lighting Improvements", dated June 2000 (see attachment #13). All existing interior light fixtures shall be replaced with new light fixtures.

2.7.5.1 Lamp and Ballast Types

The following electronic ballast specification shall be for 2 foot and 4 foot long 32 watt, T-8 fluorescent rapid start lamps and compact fluorescent ballasts for compact fluorescent 4-pin lamps. Electronic ballasts shall consist of a rectifier, high frequency inverter, and power control and regulation circuitry. The ballasts shall be UL listed, class P, CSA approved, with a Class A sound rating and shall contain no PCBs. Ballasts shall meet 47 CFR 18 for electromagnetic interference and shall not interfere with the operation of other electrical equipment. Ballast design shall withstand line transients per IEEE C62.41, Category A. Unless otherwise indicated, the minimum number of ballasts shall be used to serve each individual fixture, using one, two, three or four lamp ballasts. A single ballast shall not be used to serve multiple fixtures. Electronic ballasts for F17T8 and F32T8 lamps shall be from only one manufacturer and shall be rapid start type. Electronic ballasts for 4-pin compact fluorescent lamps may be from another single manufacturer. Each ballast manufacturer shall furnish test reports from an independent testing laboratory, such as ETL, to verify that their ballasts meet all of the following requirements:

A. Light output regulation shall be +/- 10%, for +/- 10% input voltage range.

B. Voltage input regulation shall be +/- 10%, for +/- 10% input voltage range.

C. Lamp current crest factor shall be no more than 1.6.

D. Ballast factor shall be not less than 85% nor more than 100%.

E. A 60 Hz filter shall be provided. Flicker shall be no more than 1.5% with any rapid start lamp suitable for the ballast. Unless otherwise noted, T-8 lamps shall have a correlated color temperature of 3500 Kelvins and a minimum color rendering index (CRI) of lamps shall be 82.

F. Ballast case temperature shall not exceed 25 degree Celsius rise above 40 degree Celsius ambient, when tested in accordance with UL 935.

G. N/A

H. Total Harmonic Distortion (THD) for non-dimming ballasts shall not be more than 10%.

I. Power factor shall not be less than 98%.

J. Ballasts shall operate at a frequency of 42 kHz or above.

K. Operating filament voltage shall be 2.5 to 4.5 volts. Operating filament voltage for dimming ballasts below 50% for full light output shall be greater than 3.0 but not greater than 4.5 volts, 0 to 1.5% flicker throughout the dimming range.

L. Operating mode shall be rapid start for non-dimming ballasts.

M. N/A

N. Warranty. Three year full warranty including a $10 labor allowance.

O. N/A

P. Ballast shall ignite the lamps at any light output setting without first having to go to full light output. One, two, three or four lamp ballasts shall dim evenly when controlled by the same dimmer switch.

Q. Ballast Efficacy Factor (BEF):

1 lamp – 2.3
2 lamp – 1.2
3 lamp – 0.8
4 lamp – 0.6

2.7.5.2 Lighting Illumination Levels

Design illumination levels given below with +5 - 0 footcandles tolerances, and other lighting requirements shall be provided in accordance with the IES Lighting Handbook and as shown below:

Area	Footcandle Level	Fixture Type
Corridors	20	Recessed Fluorescent w/Prismatic lens
Comm & Elect Rooms	50	Industrial Fluorescent
Mech Rooms	15	Industrial Fluorescent
Bedrooms	20	Surface Fluorescent w/Prismatic lens
Recreation Room	50	Recessed Fluorescent w/Prismatic lens
Lounge	30	Recessed Fluorescent w/Prismatic lens
Laundry	50	Surface Fluorescent w/Prismatic lens
Kitchenette	50	Reccessed Fluorescent w/Prismatic lens
Janitor (w/o Comm)	5	Surface Fluorescent w/Prismatic lens
Bathrooms	20	Wall Surface Fluorescent w/Prismatic lens
Bedroom Closet	10	Surface Fluorescent w/ lens

2.7.5.3 Fixture Selection Considerations

Fixtures selected shall conform to the Presidio of Monterey electric utility rebate program. All fixture selections shall be coordinated with Chief, Utilities/Energy Division, Directorate of Public Works (DPW). POC is Mr. Dewey Baird at (831) 242-6315.

2.7.5.4 Bedroom Light Fixtures

Provide a surface mounted fluorescent fixture with 32 watt T8 fluorescent lamps in each bedroom (some barracks rooms have two bedrooms = two light fixtures/one per bed). The fixture shall have a prismatic lens and decorative wood trim to match kitchenette light fixture.

2.7.5.4a Kitchenette Light Fixtures

Provide a recessed fluorescent fixture with 32 watt T8 fluorescent lamps. The fixture shall have a prismatic lens and decorative wood trim to match the Kitchenette cabinetry finish.

2.7.5.5 Bathroom Light Fixtures

Provide a wall mounted fluorescent fixture~~,~~ with polished chrome finish. Locate fixture above mirror. Fixture shall be vaportight. Light fixture shall have emergency lighting feature. Reuse the emergency ballast from the existing bathroom fixture that was removed from the same location (the emergency ballasts were installed very recently). Bathroom fixture shall be fully ON/OFF controlled by room light switch under normal conditions, but shall energize at least one lamp upon loss of power regardless of light switch state.

2.7.5.6 Walk-in Closet Fixtures

Provide a light fixture in walk-in closets in bedrooms. Fixture shall be fluorescent, controlled by a wall mounted switch. Fixture type and installation shall comply with requirements of NEC Article 410.

2.7.5.8 Fixture Type in Communications, Mechanical, and Electrical Rooms

Use industrial type fluorescent lighting fixture with 8 to 15 percent up-light with protective wire grills.

2.7.5.9 Support of Pendant Mounted Fixtures

Fixtures shall not be supported from the underside of the roof deck.

Suspension of fixtures shall be from structural members where spacing of structural members coincides with required fixture spacings. Where fixture spacing does not coincide with structural supports, provide steel channels mounted between and connected to structural members for support of pendant mounted fixtures. Provide seismic bracing of light fixtures as required by paragraph 2.7.9 Seismic Considerations.

2.7.5.10 Ballasted Fixtures

Ballasted fixtures shall have ballasts which are compatible with the specified type and rating of lamps indicated and shall comply with applicable provisions of the publications referenced. Interior fixtures shall be NEMA LE 4 and UL 1570 for ceiling compatibility of recessed fixtures. Fixtures shall be plainly marked for proper lamp and ballast type to identify lamp diameter, wattage, color and start type. Marking shall be readily visible to service personnel, but not visible from normal viewing angles.

2.7.5.11 Fluorescent Lamps

Fluorescent lamps shall be of the rapid-start type, and shall not require starter switches. All fluorescent F17T8 and F32T8 lamps shall be for electronic ballasts and shall have a correlated color temperature of 4100 Kelvins and a minimum color rendering index (CRI) of 85. Provide fluorescent lamps with stick coil cathodes to eliminate end darkening. Fluorescent lamps shall be listed as low mercury type.

2.7.5.12 Compact Fluorescent Lamps

Compact fluorescent lamps shall be socketed replaceable type and shall have a minimum of 10,000 hour lamp life based on minimum 3 hours per start. All lamps shall have a correlated color temperature of 4100K and 85 CRI. Compact fluorescent lamps shall be for electronic ballast type, and either 13 watt with base type G24q-1 or 18 watt with base type G24q-2.

2.7.5.13 Pacific Gas & Electric (PG&E) Rebate Program

The design of this project shall be coordinated with PG&E to take advantage of their rebate program for use of energy efficient lighting systems and controls. The point-of-contact is Connie Luallen, PG&E San Luis Obispo office, phone: 805-595-6416.

2.7.5.14 Exit and Emergency Lighting

Each building has a Holophane model #736182 emergency lighting battery/inverter panel in the electrical room that will be reused to supply all emergency ***interior and exterior*** lighting requirements, (except bathrooms that have reused battery packs as described elsewhere in this RFP). ~~This panel also feeds some exterior building wall-mounted lights (stairs, breezeways) that are outside the project scope – maintain service to these exterior wall-mounted lights.~~ Provide exit and emergency lighting in accordance with the requirements of NFPA 101, Life Safety Code. Provide battery backup for exit and emergency lighting fixtures via existing Holophane panel, except as noted otherwise. Exit lighting fixtures shall use a light emitting diode light source and shall be red or green color. "Bugeye" type emergency lights (floodlight heads mounted atop a battery unit, or mounted

separately) shall not be used. Emergency lighting shall be wired to energize only during a power outage, or upon opening of the branch circuit breaker.

2.7.5.15 Light Fixture Sources

Contractor shall provide sources (name, mailing address and phone number) for obtaining of replacement parts for all light fixtures, including all lamps and ballasts.

2.7.5.16 Light Switching Requirements

Each room or area shall be individually switched. Barracks rooms shall have individual light switches for bathroom fixture, each bedroom fixture, kitchenette fixture and each closet fixture. Recreation room lights shall be double switched for multi-level illumination.

2.7.5.17 Occupancy Sensor Lighting Control

Provide occupancy sensors to control all light fixtures in all interior corridors, recreation rooms, ***first floor public restrooms (not in barracks private bathrooms),*** laundry rooms, lounges, janitor, mechanical, electrical and communications rooms. Occupancy sensors shall be positioned to 100% cover the rooms covered. Occupancy sensors in corridors shall monitor all doorways in particular. Use the type of sensor best suited to the application, i.e. infrared, ultrasonic, or dual-technology, per manufacturer's recommendations. Provide required system accessories as required such as power packs and control cabling per manufacturer's recommendations. Control cabling is not required to be in conduit but shall be concealed in walls and ceilings. Power packs shall be installed in a readily accessible location. Sensor equipment shall come from one manufacturer. Provide equipment from manufacturer "The Watt Stopper", "Sensor Switch", "Novitas", "Mytech (Hubbell)" or in accordance with the equipment listed in the Presidio Of Monterey Warranty & Material Submittal For Lighting Improvements. Sensors shall have their time delay set at 15 minutes or as directed by the Contracting Officer. All rooms with occupancy sensors shall be walk-tested in the presence of the Contracting Officer to demonstrate 100% coverage of the area.

2.7.6 Fire Alarm System

2.7.6.0 Demolition of Existing Fire Alarm System

The existing fire alarm system in each building shall be replaced in its entirety, with the exception of the fire alarm system conduits, which may be reused at the contractor's option. Remove all existing devices – pull stations, alarm bells, smoke detectors, fire alarm control panels, remote annunciators and any other devices. Remove all existing fire alarm system wiring. The following requirements shall be for the "replacement fire alarm system".

2.7.6.1 Scope

Provide and place in operating condition devices, as described herein, and in strict accordance with NFPA 72. The system shall include, but not be limited to, initiating devices, notification appliances, conduit, wire, fittings, and all accessories required to provide a complete Addressable FACP (Fire Alarm Control Panel) operating system. FIRST ALARM, (831) 649-1111, is the Presidio of Monterey fire alarm

supervision and maintenance contractor. The FACP shall be compatible with the system used by First Alarm. The designer shall determine the number of signaling line circuits and indicating appliance circuits required. Provide main fire alarm control panel with the local capacity to accept the total number of analog/digital inputs and signaling line circuits. The contractor shall not exceed the maximum resistance and capacitance values specified by the manufacturer for each signaling device circuit or indicating appliance circuit. Each device on a signaling line circuit shall be checked continuously to include the following: sensitivity, response, opens, shorts, ground faults functionality and status. Transmission of alarm, and status of FACP shall be automatically initiated by the FACP to "First Alarm" over a pair of telephone lines. Provide transmission equipment and software integral to the FACP that is 100% compatible with existing Central station equipment presently utilized by FIRST ALARM. Transmission of an alarm condition to FIRST ALARM shall occur only upon actuation of either the Water Flow Switch, a ***combination*** smoke detector***'s integral heat detector*** or any Manual Pull Station. FACP shall be provided with integral 24 volt D.C. battery backup & re-charging systems sized to meet system requirements in accordance with NFPA 72. Spare parts shall be distributor stocked within 90 miles. Provide separate power branch circuits for the fire alarm control system including the appropriate conduit, wires, dedicated circuit breakers, and ground wiring. Label branch circuits at the panelboard as Fire Alarm Control Panel and Graphic Annunciator. The fire alarm system shall be in a separate conduit.

2.7.6.2 Initiating and Indicating Circuits

See section "Fire Protection" located elsewhere in this RFP for fire sprinkler system requirements. In addition to coverage by the fire sprinkler system, provide an automatic addressable type smoke detection system, to be monitored by the FACP. Addressable smoke detectors shall be type photoelectric. Sleeping rooms shall be provided combination smoke detectors with integral audible alarm, and heat detectors for building alarm. ***Locate combination smoke detectors on sleeping room/living area wall near bathroom door (bathtub side of door; this is the location of at least some of the existing smoke detectors in building 841).*** Provide addressable manual pull stations at all exits from the building, and along any paths of egress in excess of 61 meters [200 ft], for manual alarm notification capability per NFPA 101, Life Safety Code. Provide supervision of water flow switch(es) to annunciate a general building Alarm upon a sprinkler system activation. Provide supervised circuits for the tamper switches of the ~~Post Indicator Valves and~~ OS&Y shut-off valves to annunciate a trouble condition if the shut-off valves are in the closed position. Manual pull stations shall be provided semi-flush on the wall at 48 inches above finished floor. Provide notification appliance circuits with sufficient number of combination alarm audible & visual and visual-only notification appliances within building to notify all occupants upon alarm. All interior audio signals shall be a minimum sound rating of at least 85 dBA at 3.048 meters (10 feet). Zone alarm indicating appliance circuits separately to aid troubleshooting. Each SLC (Signaling Line Circuits), shall be Class A (Style 7α) in accordance with NFPA 72. NAC (Notification Appliance Circuits) shall be Class A Style Z in accordance with NFPA 72. SLC and NAC shall be provided with a return conduit loop, to the main fire alarm panel, in a separate conduit so that if the conduit and all conductors are severed at any point, all SLC and NAC shall remain functional. Wiring for signaling line circuits shall be minimum #16 AWG twisted pair with shielded jacket per NFPA 72.

All initiating devices such as smoke detectors, heat detectors or combination smoke and heat detectors, manual pull stations shall be addressable and connected directly to SLC loop. Notification appliance circuits for combination audible horn & visual strobes or visual strobes-only notification appliances shall be type Style Z (Class A), #14 AWG minimum. Visual strobes shall be ADA rated, one to three Hertz flash rate, and effective intensity of 75 candela. Conduit for all fire alarm system shall be minimum 21 mm [3/4 inch]. All cables shall be per the FACP manufacturer's recommendations. All conduits shall be installed concealed above acoustical ceiling or in walls, except in mechanical and ~~/~~electrical rooms. Sprinkler water flow switch alarm, main valve tamper switch and PIV tamper switch shall be required to be distinguished by device type, and riser number.

2.7.6.3 Graphic Remote Annunciator Panel

Provide a flush-mounted ~~graphic~~ remote annunciator panel in a central location of this facility~~ which provides graphical representation of the entire facility~~. Locate this panel such that it is readily visible to fire department personnel. Annunciator shall have ~~relampable indicator lamps and~~ an alphanumeric display. ~~The lamp (LED) for the proper zone shall flash upon any alarm, supervisory or trouble condition on the fire alarm system.~~ The alphanumeric display shall describe the zone activated. ~~Annunciator lamps shall be extinguished only by operating the alarm reset switch on the control panel.~~ Annunciator shall contain ~~a lamp test switch,~~ an audible trouble signal and a trouble silence switch to silence the audible alarm~~, but not extinguish the trouble lamp~~. Switches shall be located within a locked panel, and easily visible through a glass or plastic viewing plate. Panel door shall have a keyed lock identical to the lock on the control panel. Zone identification shall ~~be by silk-screened or engraved labels and shall~~ consist of word description of the zone, location and device type. Provide a weatherproof enclosure if panel is located in an exterior breezeway.

2.7.6.4 Minimum Designer Qualifications

Design of fire alarm system shall be done by a registered National Institute for Certification in Engineering Technologies (NICET) Level 4 Designer, with at least 3 years of current and applicable experience in similar designs. The design drawings must bear the Designer's NICET Level 4 Certification and signature.

2.7.6.4.1 Minimum Installer Qualifications

A NICET registered Fire Alarm Technician with a minimum of 4 years experience shall perform/supervise the installation of the fire alarm system. Fire Alarm Technicians with a minimum of 2 years experience may be utilized to assist in the installation and termination of devices. An electrician shall be allowed to install wire or cable and to install conduit for the fire alarm system. The Fire alarm technicians installing the equipment shall be factory trained in the installation, adjustment, testing, and operation of the equipment used.

2.7.6.5 Submittals

Fire alarm system submittals shall include spare parts data, and battery, charger and voltage drop calculations for the fire alarm system. Submittals shall include detailed test procedures, submitted 60 days prior to performing system tests. Test reports in booklet form

showing all field tests performed to prove compliance with the specified performance criteria, upon completion and testing of the installed system, shall be submitted (each test report shall document all readings, test results and indicate the final position of controls). All submittals shall be signed and stamped by the qualified fire alarm system installer.

2.7.6.6 Testing

The Contractor shall notify the Contracting Officer and Fire Prevention Officer (Timothy Johnson (831)242-7545) 30 days before the preliminary and acceptance tests are to be conducted. The tests shall be performed in accordance with the approved test procedures in the presence of the Contracting Officer and the Fire Prevention Officer. The Contractor shall furnish all instruments and personnel required for the tests.

2.7.6.6.1 Preliminary Tests

Upon completion of the installation, the system shall be subjected to functional and operational performance tests including tests of each installed initiating and notification appliance. Tests shall include the meggering of all system conductors to determine that the system is free from grounded, shorted, or open circuits. The megger test shall be conducted prior to the installation of fire alarm equipment. If deficiencies are found, corrections shall be made and the system shall be retested to assure that it is functional.

2.7.6.6.2 Acceptance Test

Testing shall be in accordance with NFPA 72H. The recommended tests in NFPA 72H shall be considered mandatory and shall verify that all previous deficiencies have been corrected. The test shall include the following:

A. Test of each function of the control panel.

B. Test of each circuit in both trouble and normal modes.

C. Tests of alarm initiating devices in both normal and trouble conditions.

D. Tests of each control circuit and device.

E. Tests of each alarm notification appliance.

F. Tests of the battery charger and batteries.

G. Complete operational tests under emergency power supply.

H. Visual inspection of all wiring connections.

I. Opening the circuit at each alarm initiating device and notification appliance to test the wiring supervisory feature.

J. Ground fault

K. Short circuit faults

L. Stray voltage

M. Loop resistance

2.7.6.6.2.1 Test Documentation

The contractor shall provide, at the time of test completion, a test completion report consistent with the checklist in NFPA 72. Provide one copy to the fire department representative and one copy to the Contracting Officer's Representative.

2.7.6.7 Approval by Presidio of Monterey Department of Public Works (DPW)

The Presidio of Monterey DPW shall review the intermediate (65% and 90%) design submittals, and shall have final approval signature on final design submittal.

2.7.7 Concealed Wiring and Conduit:

All new wiring and conduit for ALL electrical systems in this project shall be concealed (except in Mechanical, Electrical, Communication, Laundry and Janitorial rooms).

2.7.8 Lightning Protection Systems.

2.7.8.1 There is no requirement for a lightning protection system.

2.7.9 Seismic Considerations.

All electrical systems shall be seismically protected in accordance with the Uniform Building Code (UBC) 1997 edition. Monterey is Seismic Zone 4.

2.7.11 Device Body and Coverplate Colors

2.7.11.1 General

Device bodies and coverplates for wall switches, power and communications outlets shall be a color which harmonizes with the room in which they are located. All devices in the same room shall be the same color.

2.7.12 Coordination of Electrical Device Locations

2.7.12.1 Device Locations

Coordinate electrical devices with furniture arrangements in bedrooms for optimum location. Devices should be located adjacent to the preferred locations of furniture. The use of extension cords is discouraged.

2.7.12.2 Mounting Heights

Outlets shall be mounted above countertops and sinks where it is appropriate to do so, such as in bathrooms and lounges. Power receptacles, telephone/data outlets, and Cable TV outlets shall be mounted at the same mounting heights on blank walls 18 inches above finished floor) and above countertops (around 6-inches above countertop), to provide a uniform horizontal outlet arrangement, unless noted otherwise. Maximum height of lighting switches and fire alarm system manual pull stations shall be 48-inches to the switch or handle.

2.7.13 Existing Site Conditions:

2.7.13.1 Contractor Responsibility

Existing Site conditions, for both exterior and interior work, have been investigated and described in this RFP in accordance with the best knowledge available at the time this document was prepared. The contractor shall be fully responsible to verify all existing site conditions as they may affect him.

2.7.14 Existing Building Code Deficiencies

The contractor shall correct all existing code violations in the barracks buildings as a part of his work to renovate the barracks electrical systems. All codes mentioned in this RFP shall be complied with. Specifically (but not limited to), the contractor shall provide drip pans to protect all electrical panels from existing water pipes above them in the electrical rooms [NFPA 70, Article 110-26(F)(1)(b)].

2.8 Communications Design

2.8.1 General

All requirements herein are typical for three existing barracks buildings that are being renovated, unless noted otherwise.

Remove all existing communications equipment, to include outlets/jacks, cabling and communications telephone terminal backboard equipment. Existing hubs and UPS devices in the electrical/communications rooms shall be removed by AAFES prior to contractor's work (coordinate with AAFES). Existing conduits may be reused at the contractor's option. All demolition materials shall be disposed off of government property by the Contractor, unless otherwise noted. The Contractor shall dispose of all hazardous materials in accordance with all applicable State of California regulations.

In accordance with the United States Army Installation Information Infrastructure Architecture (I3A) Implementation Guide, dated April 2001, all administrative information outlets shall be dual 8-position type connectors. Dedicated inside ~~and outside~~ plant ducting space for the purpose of fiber optic cable installation shall be engineered into this project to meet the intent and be in accordance with the United States Army I3A Architecture guidelines (***http:www.hnd.usace.army.mil/paxspt/isce/pubs.html***~~http://arch-odisc4.army.mil/i3a/General_Docs/Implemenation_GuideV3.pdf~~). Materials and equipment shall be the standard products of a telecommunications manufacturer regularly engaged in the manufacture of the products and shall be the manufacturer's latest standard design that, unless otherwise noted (UON), has been in satisfactory use for at least 1 year prior to installation. Materials and equipment shall conform to respective publications of Telecommunications Industry Association/Electronic Industries Association TIA/EIA 568-A, the latest revision of TIA SP-4195 or, on publication, Addendum No. 5 of ANSI/TIA/EIA-568-A, TIA/EIA 569, TIA/EIA 607, Insulated Cable Engineers Association ICEA S-80-576, and ICEA S-83-596, and other requirements specified below and to the applicable requirements of NFPA 70. The Contractor shall provide a premises Telecommunications system that UON is a single-manufacturer structured cabling system. The Category 6 cabling system shall comply with the proposed component, link and channel performance requirements of the latest revision of TIA SP-4195 "Additional Transmission Performance Specifications for 4-Pair 100 Ohm Category 6 Cabling" or, on publication, Addendum No. 5 of ANSI/TIA/EIA-568-A. The premises telecommunications cabling system shall be designed in accordance with ANSI EIA/TIA 569A standards and the I3A Design and Implementation Guide (April 2001). The premises telecommunications cabling system shall be backed by a manufacturer's 15-Year Performance Warranty. The performance warranty shall be facilitated by the Contractor and be established between the User and the cabling system manufacturer. The Contractor shall coordinate communications requirements with the Army Air Force Exchange Service (AAFES) via the Contracting Officer. ***The AAFES point-of-contact is Mike Brown at phone # 831-333-3700.***

2.8.2 Installer Qualifications

The telecommunications system installer, hereafter referred to as the contractor, is required to furnish all labor, supervision, tooling, miscellaneous mounting hardware and consumables for premises telecommunications cabling system. The contractor shall maintain

current approved certification status with the warranting manufacturer in the application, installation and testing of the specified Category 6 UTP type and rating of the telecommunications system and equipment, including all manufacturer training requirements, for the duration of the installation of the complete premises telecommunications system. After installation, the Contractor shall submit all documentation to support the warranty in accordance with the manufacturer's warranty requirements, and to apply for said warranty on behalf of the User. With the exception of the CATV coaxial cables and provision of conduit, electrical boxes, and pullwires, the premises telecommunications system work shall not be done by the general Electrical trade Contractor. General electrical trade staff (electricians) shall not be used for the installation of the premises distribution system cables and associated Local Area Network (LAN) hardware.

2.8.3 Premises telecommunications System

The premises telecommunications system shall be designed in accordance with I3A Design and Implementation Guide (April 2001) by a Registered Communications Distribution Designer (RCDD) with at least 3 years of current and applicable experience in similar designs. Provide a telecommunications system in the building that includes the following: 1) a raceway distribution system consisting of a cable tray ***(cable tray optional in breezeways and on first floor)*** originating in the communications closet***s***, with a dedicated 27 mm [1 inch] conduit branching from the cable tray to each individual wall area outlet (WAO). Each 27 mm [1 inch] conduit shall contain the required number of dedicated horizontal 24 gauge 4-pair Category 6 Unshielded Twisted Pair plenum copper cables for terminating to each outlet jack in the WAO. Bond all conduit transition to cable tray. Provide wall area outlets (WAO's) each with a modular faceplate and one Category 6 angled double coupler with port A for one Telephone jack and port B for one Data jack terminations, with T568A wiring connectors. All Telephone and Data jacks shall be Category 6 modular 8-pin, 8-wire RJ-45 jacks, except as further noted below; 2) in each communications room ***(1st and 2nd floors)***, provide required quantities of 110 type Category 6 terminal blocks, Category 6 data patch panels, patch cords, equipment cabinets, and other equipment as described below. 3) provide 110 type Category 6 terminal blocks at 2nd floor TTB to extend cabling to ***2nd and 3rd floor communications outlets*** ~~3rd floor TTB~~; 4) provide 103 mm [4-inch] conduit stubbed through 2nd floor to 3rd floor, provide a 300 mm x 300 mm [12-inch x 12-inch] box on 3rd floor for 3rd floor communication cables routing to WAO's on the 3rd floor***; provide two 4-inch conduits stubbed through 1st floor to 2nd floor for routing of riser cables from 1st to 2nd floor***. System shall be pre-wired in accordance with TIA/EIA-568A, EIA-569A, and EIA-606. ***Provide a nylon pull cord in all conduits between communication closets and station outlets.***

2.8.4 Building Telecommunications *Terminal Backboards (TTB)* ~~**Closet (TC)**~~ (***First and*** Second Floor***s***)

Provide a 2.44 meter [8 foot] high ***by 6 foot wide*** by 19 mm [3/4 inch] thick plywood telephone backboard (TBB)***, one each in the first floor electrical/communications room and in the 2nd floor janitor/electrical/communications room*** ~~on all walls in the TC~~. ~~Service entrance~~***Riser*** cable and station voice ***and data*** cables shall have separate designated areas on the backboards. Station voice cables and station data cables shall have separate designated areas on the floor mounted equipment cabinets. Provide on the ***1st floor*** TBB, the required incoming service entrance cable splice case and Building Entrance Protector (BEP)

terminals. Provide the required quantity of Category 6 rated S110 terminal blocks, plus 15% spare, on insulating mounting brackets at the TBB. Inside the Telecommunications Closet, provide a ladder cable tray adjacent to and horizontally 3" above the top of the full length of the backboards and over 100% of equipment cabinets with tray dropouts for ease of cable routing and cable management; and, a vertical cable tray on backboards for support of service entrance riser backbone cables. Provide all required cable guides on the equipment cabinets and TBB's for enhancing cable management and routing cables. Provide ***one wall*** ~~three floor~~-mounted equipment ***cabinet on each floor (1 and 2)*** for mounting Dial Central Office (DCO) voice patch panels***,*** ~~and~~ a duplicate set of station voice patch panels in one equipment cabinet, all station data patch panels***,*** ~~mounted in another equipment cabinet,~~ and a fiber optic patch panel and ***rack space for*** future HUB and UPS ~~mounted in the third~~ equipment ~~cabinet~~. Provide a duplicate set of Category 6 Voice patch panels at the equipment cabinet, for cross- connecting to the Dial Central Office. Provide a splice case and Building Entrance Protector (BEP) terminal for the ***existing*** ~~100 pair 24 gauge~~ service entrance telephone cable. Provide two dedicated 20 amp 120 volt circuits and quadruplex receptacles on each TBB. ***Note: mount wall-mounted equipment cabinets such that adjacent electrical panels have the minimum code-required working clearances around them. If this is not possible at building 841, then first obtain approval/concurrence from Contracting Officer's Representative, and second delete cabinet and mount equipment directly to wall to save space.***

Building 841's 2nd floor Janitor/Elec/Comm Closet has a new floor-mounted communications rack with a Lucent Fiber-Optic Shelf, fed via fiber-optic riser cable. This equipment may be reused if the contractor can fit all required equipment in the Janitor/Elec/Comm closet with this setup, meet all codes and observe industry standard working space around all equipment. Modification of other 2nd floor Janitor/Elec/Comm Closets to match this setup may be done with approval from AAFES and the Contracting Officer.

2.8.5 Premises Horizontal Cable

Provide horizontal Category 6 unshielded twisted pair UTP 4-pair 24 gauge plenum cables from Telecommunications Closet (TC) to each floor wall area outlet (WAO) RJ-45 jack, via conduits that branch out to each WAO. Connect all single 8-position type wall and pay telephone outlets from the telephone terminal backboard and/or communication closet with one 4-pair, EIA/TIA 568***B*** ~~A Category 6~~, UTP solid copper station cable. In the TC, all premises UTP Voice horizontal cables shall be terminated on equipment cabinet voice patch panels. All UTP Data horizontal cables shall be terminated on data patch panels mounted on floor-mounted data equipment cabinets. All terminations shall be wired in accordance with EIA/TIA 568A-5. Each premises voice and data horizontal cable shall be specified to handle transmission speeds at a minimum of 250 MHz ~~and manufacturer tested up to 350 MHz~~. The PVC jacket shall be color coded differently for voice and data cables, as recommended by AAFES. Each category 6 cable shall be labeled at the telecommunications closet end with the WAO number it comes from and at the WAO end with the patch panel position where it is terminated. ***Similarly label each cable feeding single telephone and pay phone outlets.***

2.8.6 Telecommunications Outlets

Provide Wall area outlets (WAOs) that meet the requirements described

by this paragraph. All WAO ***telephone/data duplex*** assemblies used in the premises distribution system shall consist of modular angled double couplers, Category 6, T568A wiring, assembled in a single gang faceplate for two couplers~~), similar to Siemons CT-5-T4-T4-20, with red/blue icons to identify ports~~. Modular jacks shall be unkeyed. Provide each WAO box with a single gang faceplate and the following modular 8-pin, 8-position RJ-45 jacks: 1) two angled double coupler, T568A wiring. Port assignments on all Category ***6***~~5e (enhanced)~~ couplers shall be as follows: Port A-Voice termination and port B-Data termination. Faceplates shall have a built-in cover, for label inserts, with the manufacturer's approved labels for the Contractor to label each jack as to its function and in accordance to the WAO labeling plan provided by the Government communications point of contact. Provide two WAOs in each bedroom, coordinated with furniture layout. ***Provide WAOs at 12 feet on centers in the recreation room and in the lounges.*** In the telecommunications room, electrical room***,*** ~~and~~ mechanical room***, and at each required pay telephone location,*** provide a ***single 8-position RJ-45*** telephone wall outlet, with faceplate lugs, at ~~1350 mm [~~***48***~~54~~ inches~~]~~ above finished floor, for after hours emergency use. ***Provide a pay telephone outlet in each Lounge. Provide two pay telephone outlets at each breezeway at each floor.*** ~~Provide a wall phone outlet with one 8 pin modular (RJ45Type) connector to each day room. Provide two handicapped accessible pay telephone outlets (weatherproof) in Breezeway.~~

2.8.7 Patch Panels

Patch panels shall be Category 6 rated, 482 mm [19 inch] rack mounted, with an attached wire management device. The front panel shall consist of 8-pin, 8-position RJ-45 modular jacks configured to T568A wiring configuration listed in TIA/EIA-568-A. The rear panel shall consist of color-coded, 110-type, IDC connections conforming to T568A wiring configuration. The required patch panels shall provide sufficient modular jacks to accommodate the installed wall area outlet modular jacks, plus 10 percent spares. All modular jacks shall be unkeyed. Panels shall be labeled according to WAO labeling plan, provided to the Contractor by the Government communications point of contact, for all voice and data.

2.8.8 Terminal Blocks

Terminal blocks shall be wall mounted wire termination units consisting of 4-pair connecting blocks, clear label holders with white designation labels. Blocks shall be type 110 which meet the requirements of Addendum No. 5 to ANSI/TIA/EIA-568-A, for Category 6. Adequate vertical and horizontal wire routing areas for cable guides shall be provided between groups of blocks. ***Terminal blocks for cables feeding single and pay telephone outlets may be 66 style.***

2.8.9 Patch Cords

Patch cords shall be Government Furnished, Government Installed (GFGI).

2.8.10 Copper Telephone Riser Cable

Riser cable shall meet the requirements of ICEA S-80-576 and ANSI/TIA/EIA-568-A for Category 3 100-ohm UTP. Conductors shall be solid untinned copper 24 AWG.

2.8.11 Premises Fiber Optic Backbone Riser Cable

~~Multi~~***Single***mode fiber optic multi-strand backbone riser cable shall meet the requirements of ANSI/TIA/EIA-568-A and ICEA S-83-596 for ~~62.5/125 micrometer multi~~***single***mode ~~graded index~~ fiber ***optic*** cable. ~~Numerical aperture for each fiber shall be a minimum of 0.275. Cable construction shall be tight buffered type.~~ ***Maximum cable attenuation shall be 4.5 dB at either 1310nm or 1550nm, with a TIA/EIA 568-B.1 Margin of 0 at either 1310nm or 1550nm.***

2.8.12 Fiber Optic Patch Panels

Provide in the second floor communications room 19 inch rack-mountable fiber optic FO splicing and patching panels as follows: ~~one 12/24 port FO patch panel for outside plant site backbone FO cable, and~~ one 12/24 FO patch panel for distribution. Patch panels shall provide strain relief for cables. Panels shall be labeled with alphanumeric x-y coordinates. Unless otherwise directed by ***AAFES***~~the DOIM~~, patch panel connectors shall be ST type with ceramic ferrule material with a maximum insertion loss of 0.5 dB. Connectors shall meet performance requirements of EIA ANSI/TIA/EIA-568-A. Patch cords shall be Government Furnished, Government Installed (GFGI).

2.8.13 Equipment Cabinets

Provide ***wall*** ~~floor~~ mounted electrical equipment cabinets with frame size of 1950 mm [78"] H x 575 mm [23"] W x 750 mm [30"] D, with 1900 mm [76"] rack mount space, and 482 mm [19"] rack mount rails. Cabinets shall consist of plexiglas front door with lock on front~~, steel rear door with lock (upper half vented)~~, fan assembly, 6 position power strip with circuit breaker and 3600 mm [12 foot] power cord. ~~Cabinet shall be centered from backboard and have a minimum of 900 mm [3 feet] of maintenance space surrounding at least 3 sides of the cabinet. Back of cabinet will face the plywood backboard.~~ Cabinets shall be properly grounded. ~~Cabinets shall be anchored to the floor to provide seismic bracing as required in section 2.10.9 "Seismic Considerations".~~ For commercial TV and CATV equipment, provide separate backboard-mounted ventilated 1050 mm [42"] H x 750 mm [30"] W x ~~300 mm [12~~***6***"] D hinged, lockable, NEMA 12 enclosures. Each enclosure shall have a plywood backboard and a 15A, 120VAC duplex receptacle in the bottom of the cabinet. Locate each enclosure adjacent to the service entrance conduit stub ups from the communications manhole.

2.8.14 Premises Communications Raceways

To distribute premises cabling from the TC to the building WAOs, transition from ladder tray to trough tray and exit the TC above the acoustical ceiling. Route the trough cable tray to span the entire length of the building directly above the corridors ***(except breezeways and stairs)***. Branch out from the cable tray with one dedicated 27 mm [1 inch] conduit with the required number of 4-pair 24 gauge Cat ***6***~~5e~~ UTP plenum cables to each WAO jack, in accordance with TIA/EIA-568-A, EIA-569, and EIA-606. Routing of conduit raceways shall be parallel or perpendicular to walls and ceilings and shall not be run diagonally across rooms. All conduit raceways shall be installed concealed. No continuous section of conduit or tubing shall: exceed 30 meters [100 feet]; contain 90-degree condulets (LB's); and, contain more than two 90-degree sweep bends. Additional pull boxes shall be installed to comply with these limitations whether or not indicated, such that no segment between source point and box termination exceeds the 30 meter

[100 feet] limit. Do not use pull boxes in lieu of a bend (sweep). Inside radii of bends in conduits of 53 mm [2 inch] size or smaller shall be not less than 6 times the internal conduit diameter; and for conduits 53 mm [2 inch] or larger, not less than ten times the internal diameter. Each 27 mm [1 inch] conduit from each WAO to the TC, or to the cable tray, shall be provided with one pullcord to pull in any future cable that may be necessary. ~~See Collapsed Backbone Cable Distribution Architecture at the end of this specification.~~

2.8.15 Cable Trays

Use of cable tray is optional ***for first floors and breezeways***. Cable tray shall be of nominal 77 mm [3 inch] depth and 40 or 46 mm [12 or 18 inches] wide, unless larger dimensions are required to maintain a maximum 50 percent cross sectional area cable fill. Cable trays shall penetrate fire rated walls and partitions in accordance with Article 300 of NFPA 70.

2.8.16 Grounding

Provide a Ground Bar mounted on standoff insulators with 100 mm [4"] H x 400 mm [16"] L x 6.25 mm [1/4"] T copper and 14 drilled and tapped attachment holes, at telecommunications room backboard. Provide #1/0 AWG copper ground wire in a 21 mm [3/4"] PVC conduit to interconnect the Ground Bar to the building service entrance grounding electrode system.

2.8.17 Unshielded Twisted Pair Tests

Tests shall be completed with all cables and components terminated. Equipment and systems shall not be accepted until the required inspections and tests have been made, demonstrating that the telecommunications system conforms to the specified requirements, and that the required telecommunication equipment, distribution system, and documentation have been provided. The contractor shall notify the Contracting Officer and ~~DOIM~~***AAFES*** communications planning point of contact (POC) at least 14 days before the acceptance tests are to be conducted. Any discrepancies noted during testing shall be corrected, and those tests rerun, within 14 days
Cables shall be identified at both ends (outlet and patch panel) with room designation number and A or B in a clockwise rotation from doorway of room. A copy of all documentation, which includes AS-BUILT shop drawings, floor plans with cable trays and conduit routing, floor area zoning, WAO labeling, installed equipment, Telephone closet backboard riser diagrams, crossconnects, and riser cables shall be provided to the Contracting Officer and the ~~DOIM~~***AAFES*** POC.

2.8.17.1 Test Plan

The test plan shall define milestones for each test, equipment, personnel, facilities, and supplies required. The test plan shall include the detailed test procedures to be completed, cross-referenced to the specific contractual requirements, stated herein. The plan shall also include steps for verification of station records and cable locations for all stations. All test results data shall be uploaded to a PC and printed out. An electronic file and a hard copy of all Test results shall be provided to the Contracting Officer.

2.8.17.2 Length

Each installed cable shall be tested for installed length using a TDR type device. The cable length shall conform to the maximum distances set forth in the TIA/EIA-568-A Standard. Cable lengths shall be recorded, referencing the cable identification number and circuit or pair number. For multipair cables, the longest pair length shall be recorded as the length for the cable.

2.8.17.3 Test Reports

Test documentation shall be provided in a three ring binder(s) within three weeks after the completion of the telecommunications system. The binder(s) shall be clearly marked on the outside front cover and spine with the words “Test Results”, the project name, and the date of completion (month and year). The binder shall be divided by major heading tabs, Horizontal and Backbone. Each major heading shall be further sectioned by test type. Within the horizontal and backbone sections, scanner test results (Category 3 ***(for riser, single outlet and pay telephone outlet cable);*** Category 6), and green light test results shall be segregated by tab. Test data within each section shall be presented in the sequence listed in the administration records. The test equipment by name, manufacturer, model number and last calibration date will also be provided at the end of the document. The test document shall detail the test method used and the specific settings of the equipment during the test.

Scanner tests shall be printed on 213 mm x 275 mm [8-1/2” x 11”] paper. Hand written test results (attenuation results and green light results) shall be documented on the test form. OTDR test results shall be printed or attached and copied on 213 mm x 275 mm [8-1/2” x 11”] paper for inclusion in the test documentation binder.

When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be collocated in the binder.

2.8.17.4 Test Equipment

The contractor shall supply and maintain the necessary test equipment to accomplish all premises Category 6 UTP tests. All test equipment shall meet or exceed the standards, specifications and parameters as stated in this document and the latest revision of TIA SP-4195 or, on publication, Addendum No. 5 of ANSI/TIA/EIA-568-A. The Contractor shall maintain current calibration of all test equipment during the entire testing period. Provide field testers, as recommended by the latest revision of TIA SP-4195 or, on publication, Addendum No. 5 of ANSI/TIA/EIA-568-A.

2.8.17.5 Test Performance Verification

Category 6 data cable shall be performance verified using an automated test set. This test set shall be capable of testing for the continuity and length parameters defined above, and provide results for the following tests:

Near End Crosstalk (NEXT)
Attenuation
Ambient Noise
Attenuation to Crosstalk Ratio (ACR)
Power Sum ACR

Power Sum NEXT
Return Loss
ELFEXT
Power Sum ELFEXT
Prop Delay
Delay Skew

Test results shall be automatically evaluated by the equipment, and the result shown as pass/fail. Test results shall be printed directly from the test unit or from a download file using an application from the test equipment manufacturer. The printed test results shall include all tests performed, the expected test result and the actual test result achieved.

2.8.18 Category 6 UTP Tests

All voice and data premises horizontal cables shall be tested in accordance with the latest revision of TIA SP-4195 or, on publication, Addendum No. 5 of ANSI/TIA/EIA-568-A. Testing shall be bi-directional. Cables which contain failed circuits shall be replaced and retested until they pass the specified tests. There shall not be any defective pairs in the final installation of the telecommunications cabling.

2.8.18.1 Copper Backbone Cables

Backbone copper riser cables shall be tested end-to-end, including termination devices, from terminal block to terminal block, in the respective communications closet, for proper identification, correct pin configuration, and continuity.

2.8.19 Fiber Optic Cable Tests

Unless stated otherwise, tests shall be performed from both ends of each circuit. All fiber terminations shall be visually inspected with a minimum 100 X microscope to ensure that no scratches, pits or chip surface imperfections exist after final polishing and shall be reterminated if any of these conditions exist. In addition, each fiber strand shall be tested for attenuation with an optical power meter and light source. Cable length and splice attenuation shall be verified using an OTDR. Scale of the OTDR trace shall be such that the entire circuit appears over a minimum of 80 percent of the X-axis.

~~Horizontal distribution multimode optical fiber attenuation shall be measured at either 850 nanometers (nm) or 1300 nm using an LED light source and power meter.~~ Backbone ~~multi~~***single***mode fiber shall be tested at both ***1310***~~850~~ nm and ***1550***~~1300~~ nm in one direction. Test evaluation for the panel to panel (backbone) or panel to outlet (horizontal) shall be based on the values set forth in the EIA/TIA-568-A Annex H, Optical Fiber Link Performance Testing.

Each cable shall be tested with an Optical Time Domain Reflectometer (OTDR) to verify installed cable length and splice losses.

2.8.20 Communication Room environmental

Avoid dust and static electricity by installing floor tile and treating walls and ceiling to minimize dust. Install the same (key) locks on all comm closet doors: coordinate with the ***Contracting Officer***~~DOIM Communications planning POC~~.

2.8.21 Cable Television (CATV) System

The existing Cable Television system cabling and conduit may be reused to fulfill requirements herein as applicable. All cable TV outlets, cabinets, splice and terminal blocks shall be replaced. The contractor assumes full responsibility for the function of all existing cable TV cable that he reuses.

The coaxial cable shall have a characteristic impedance of 75 ohms plus or minus 3 ohms. Cable shall have shielding which provides at least 95 percent coverage. Provide coaxial RG-6/U cable in order to meet all horizontal distance impedance limitations on each floor. Provide cable television outlets with standard bulkhead F connector in separate single-gang boxes, one for commercial TV and one for CATV, ***one outlet pair (hereafter an outlet pair is referred to simply as an "outlet")*** ~~two~~ in each bedroom***/per bed (provide two outlets in a barracks module if it has two bedrooms/2 beds)*** and one in each lounge, and recreation room. Coordinate locations of outlets with furniture layout ***(see Architectural floor plans in paragraph 2.3.20 Drawings)***. Locate boxes adjacent to one another. Each outlet shall be fed by a dedicated cable from the CATV equipment cabinets. Cables shall not be terminated to coaxial cable connectors at the backboards. Instead, coil and secure 3 meters [10 feet] of cable to the CATV equipment cabinets wall mounted on the plywood TBB. Cable shall be tested for continuity, shorts and opens. Characteristic impedance shall be verified over the range of intended operation. Cable length and corresponding cable gauge shall be verified. Cable shall be sweep tested for attenuation over the range of intended operation. ***Cable shall be run in a "home-run" method, from the outlet to the communications closet and not spliced together.***

2.8.21.1 General

The CATV point of contact is ***USA Media Group, Robert Hager at phone # 831-883-5420.*** ~~Jim Oteri (831) 242-5191, with the Audio Visual branch of the DOIM. Coordinate installation of all commercial TV supporting facilities with Bill Hogan (831) 242-6969 of the DOIM and Jim Oteri.~~

2.8.21.2 Interior Cable TV Systems

2.8.21.2.1 Coordination

The Interior Cable TV systems shall be fully coordinated with and performed in accordance with the requirements of ***USA Media Group.*** ~~the DOIM. The DOIM point-of-contact is Jim Oteri (831) 242-5191, oterij@pom-emh1.army.mil.~~

2.8.21.2.2 System Description

The commercial TV system shall be capable of transmitting UHF and VHF television signals from the local cable TV company. The contractor shall prewire all bedrooms, lounges, and recreation room. Contractor shall verify that entire installation complies with the requirements of all applicable codes, building codes, and the ***USA Media Group*** ~~DOIM~~ requirements, whichever is more stringent.

2.8.21.2.3 Submittals

Provide Shop Drawings and Manufacturer's Data indicating electrical characteristics and connection requirements, including installation

details, cable routing and system configuration for approval by ***USA Media Group*** ~~the DOIM point-of-contact Mr. Jim Oteri~~. Provide Manufacturer's Installation Instructions, to indicate application conditions and limitations of use stipulated by the Product Testing Agency; include instructions for storage, handling, protection, examination, preparation and installation of product.

2.8.21.2.4 Cable/Outlet Identification

Each cable TV circuit shall be marked at both ends, at the outlet and at the terminal cabinets, with the room number corresponding to the outlet location, and at the outlet end, with the communications room where the cable originated.

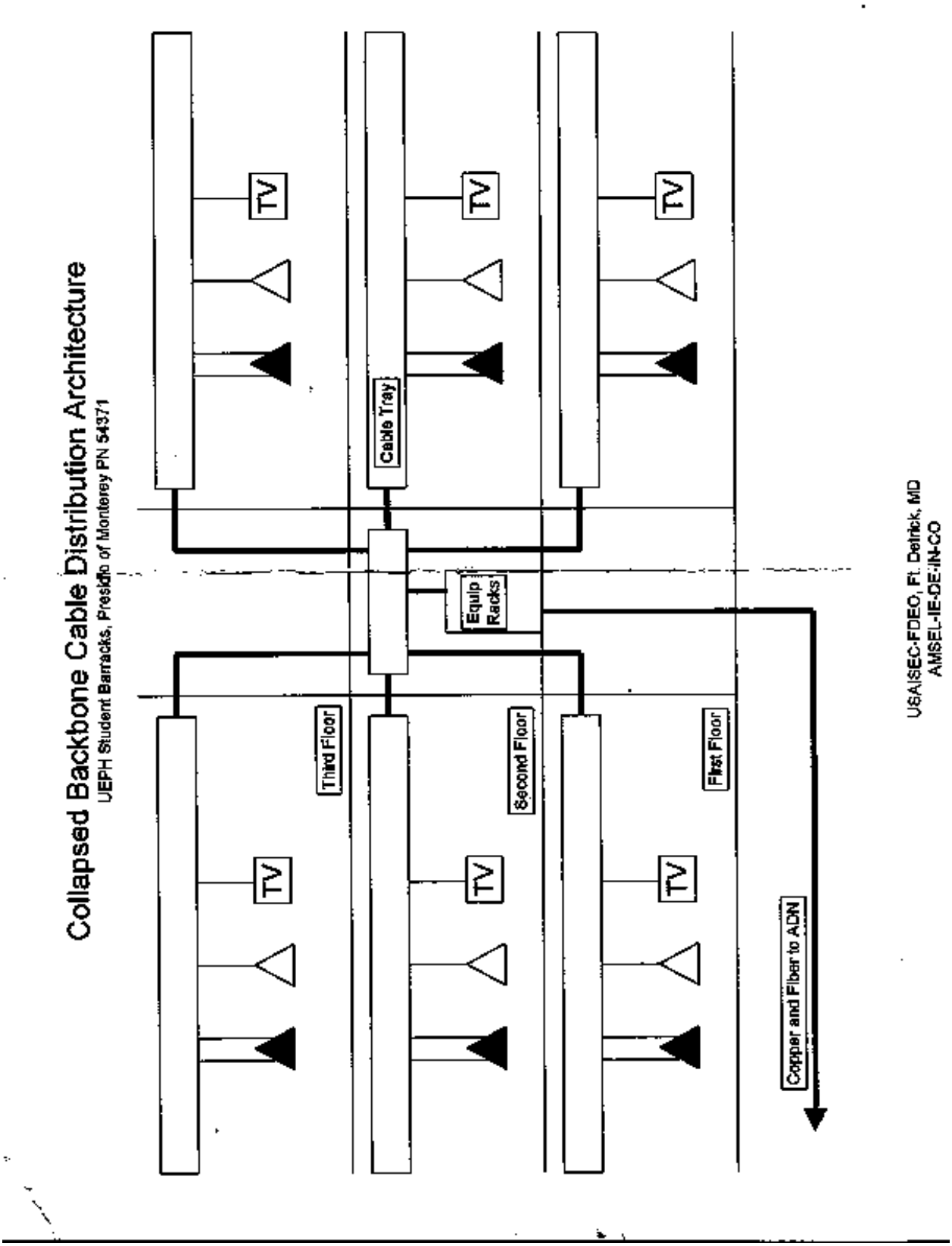
2.8.21.2.5 Testing

Test each commercial TV and CATV circuit for signal level at each outlet, in accordance with the requirements of ***USA Media Group*** ~~the DOIM point-of-contact Mr. Jim Oteri~~. Tests shall be performed in the presence of ***a USA Media Group representative*** ~~the DOIM's Mr. Jim Oteri or Mr. Bill Hogan~~ and the Contracting Officer.

2.8.22 Security systems

Include outlet boxes on walls opposite of new stairwells for future installation of CCTV system cameras (by others). Locate boxes at each floor landing for optimum coverage of stairways. Interconnect outlet boxes with 21 mm [3/4 inch] empty conduit for installation of cable by others. Terminate conduits in electrical room, at a central location for future terminal cabinet. ***Reuse existing CCTV cameras, terminal blocks, cabling and conduit, except for rerouting/concealing of conduit as required elsewhere in this RFP. CCTV circuits that are rerouted shall be tested in the presence of the Contracting Officer to demonstrate full capability.***

Provide ***empty conduit with pull cord for future*** door alarm system for all exterior doors. ~~System provided shall be compatible with the existing base wide alarm system.~~ Terminate 16 mm [1/2 inch] empty conduits in electrical room in terminal cabinet.


Collapsed Backbone Cable Distribution Architecture
UEPH Student Barracks, Presidio of Monterey PN 54371
TV
Cable Tray
Equip Racks
Third Floor
Second Floor
First Floor
Copper and Fiber to ADN
USAISEC-FDEO, Ft. Detrick, MD
AMSEL-IE-DE-IN-CO

-- Capacity
-- Electrical characteristics
-- Efficiency (if applicable)
-- Manufacturer's name
-- Any optional features to be provided
-- Physical size

2.6.3 Details: Construction details, sections, elevations, etc., shall be provided where required for clarification of methods and materials of design. All roof and exterior wall penetrations shall be detailed on the drawings. (Details shown on the architectural sheets need to be repeated here.)

2.6.4 Plumbing Floor Plan (⅛"=1'-0"): Provide a floor plan showing all principal architectural features of the building which will affect the plumbing design. The floor plan shall also show the following:

-- Room designations
-- Fixture Schedule
-- Location of utility entrances
-- Waste, vent, and hot and cold water pipe locations and sizes
-- Fixture designations
-- Location of hot water heater
-- Plumbing riser diagram
-- Demolition

2.6.5 Separate plumbing plans will not be required if sufficient information can be shown on the mechanical plans to meet the requirements shown above.

2.6.6 Provide fire protection floor plan and hydraulic calculations at 90% submittal.

2.7 **Specific Electrical Requirements:**

The electrical 65% submittal (preliminary) shall consist of site plan***s*** and floor plans, lighting fixture schedule, lighting calculations, ***power, fire alarm and communications*** riser diagrams, lighting fixture and panelboard schedules, catalog sheets of all proposed lighting fixtures, fire alarm system, and load calculations developed to 65% complete. Completely developed specifications, along with a design analysis inclusive of required calculations, and submittal register shall also be submitted at this stage.

The 90% submittal (final) shall consist of all required documents at the 65% stage but updated to incorporate compliance review comments.

The 100% submittal (corrected final) shall consist of all required documents at the 90% stage but updated to incorporate compliance review comments.

2.7.1 **Required Plans, Diagrams, Schedules, and Details on Electrical Drawings:**

2.7.1.1 Power and Signal Floor Plan (⅛"=1'-0"): Provide a floor plan showing all principle architectural features of the building which will affect the electrical design, along with any items to be removed. The floor plan shall also show the following:

-- Room designations
-- Applicable notes
-- Location of all fire alarm system devices, graphic annunciator panel, and control panel
-- Location of all intercom system devices and central equipment
-- Location of all closed circuit television system cameras, monitors, and equipment

(5) Maps and drawings are available to the Contractor from the Directorate of Public Works at 4455 Gigling Road, Ord Military Community, Seaside, California.

(6) The DPW shall review lighting and plumbing fixture submittals to insure that equipment and devices being installed are consistent with ongoing energy and water saving policies and equipment standards. POC is Mr. Dewey Baird (831-242-6315). Energy and water conservation shall be practiced by the Contractor. Major energy and water savings retrofit projects have been undertaken at Ord Military Community and Presidio of Monterey. It is requested where possible new designs shall incorporate the same energy and water savings technologies. Cut sheets and submittals are available at the DPW. POC is Mr. Dewey Baird (831-242-2315).

(7) The contractor, at the contractor's expense, shall be responsible to obtain mark and locate services (USA NORTH at 1-800-227-2600) and submit written proof of compliance to the DPW no less than three working days in advance of scheduled ground work. Mr. Dewey Baird (831-242-6315) is the DPW POC for water, sewer, electricity, and natural gas and ~~Bill Hogan (831-242-6969)~~ ***Mike Brown (831 333-3700)*** is the ~~DOIM~~ ***AAFES*** POC for telecommunications.
Additionally, the contractor shall notify the DPW no less than three working days (72-hour notice) prior to his request for a scheduled utility service outage. In all cases where underground utility services are anticipated and/or in cases where there is uncertainty of the existence of underground services, the contractor or his sub contractors shall pot hole the location(s) using non-mechanical excavation methods. Any damage to underground utilities shall be the responsibility of the contractor to repair to the satisfaction of the DPW. The contractor shall be responsible for incidents and expense arising as a result of careless equipment use or inappropriate hand digging if underground utilities were previously indicated on maps, were indicated by paint, or when the contractor has been verbally advised of the possible presence of unmarked/unmapped underground utilities by members of the Installation staff or their representatives. The Contractor shall not assume that utility maps or utility markings are accurate and shall exercise due diligence when digging.

(8) Provide a separate Office Trailer (400 S.F. Minimum Size) at the project site for the Corps of Engineers to use during the life of the construction phase of the contract. Trailer shall have heat, electricity,lights, 2 desks and chairs, large plan table, toilet room, water and sewer hook-ups, and all physical wiring required for three telephone lines.

(9) Privatization of Presidio of Monterey's gas and electric standards is pending. PG&E General Orders for gas and electric service construction shall prevail. Tbe Contractor shall coordinate the design of gas & electric systems with PG & E. The drawing shall be formally submitted for review and comment by PG & E Engineering Department. Plans to be corrected/revised IAW PG & E comments.